

THE USE OF MENTAL TOUGHNESS AS A REFLECTIVE TOOL FOR TEACHERS' PROFESSIONAL DEVELOPMENT

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Abstract

The emotional wellbeing of teachers has been a topical issue in education since HSE research found that 41.5% of teachers reported themselves as “highly stressed”. The construct of mental toughness is a personality trait relevant in explaining individuals’ responses to stress and pressure faced under any circumstances. Mental toughness is not uncontroversial and can be poorly defined, where in some cases insufficient consideration is given to non-psychological concepts in predicting outcomes, for example skills.

The purpose of this research is to establish whether teachers found engaging with Mental Toughness useful for their professional development. The research took the form of a case study within a selective independent school in south east England. 27 teachers took the Mental Toughness Questionnaire 48 (MTQ48) as a self-assessment tool and a follow up questionnaire about their reflection on their individual outcome. Senior leaders within the school were asked for comment about the use of the MTQ48 compared with the current professional development system in the school.

17 participants found outcomes from the MTQ48 affirming and 18 reported it to be a worthwhile use of their time. Participants were uncertain outcomes would improve their emotional wellbeing, with 11 reporting no opinion. Strong correlations were found between perceiving mental health benefits with gaining confidence and the measure’s use in guiding reflection. Teachers expressed a clearer idea of responses to stressors and pressure and half expressed they were likely to reflect on outcomes when setting CPD goals. Moving forward, allowing space for effective reflection emerges as an important theme. In conclusion, teachers found engaging with mental toughness worthwhile and believed it helped guide reflection, identifying applications of mental toughness in their teaching roles.

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1. Introduction

It has been reported that teaching is one of the most stressful jobs in the UK (Health and Safety Executive, 2000). Stressors can emerge from student behaviour, lack of control over work, parents, role conflict and ambiguity and poor resources (Strycharczyk & Clough, 2014). Teacher attrition is a growing problem worldwide, where studies have found in some cases 40 percent of teachers leaving the profession in the first five years (Chang, 2009) (Hong, 2010). In many cases, the most significant factor contributing to this is managing the pressures of workload (Smithers & Robinson, 2003). In addition, change is ever present in education which can lead to anxiety in teachers, reducing creativity and innovation (Cropley, 2001). Responding to and embracing change can keep teachers close to the needs of children and develop better strategies to achieve their goals (Fullan, 1993). In accepting change teachers will possess higher self-efficacy, motivating and challenging themselves by trying new strategies and seeking to improve their practice (Zimmerman, 2006).

There is evidence to suggest that teachers who felt supported and given a degree of autonomy to make decisions were more likely to stay in the profession (Weiss, 1999). It is evident that strategies should be investigated which can develop flexible, efficacious and motivated teachers. A problem of teacher education has been that in some cases it is delivered as one-off training. Such an approach is no longer appropriate as it fails to reflect the continual learning that takes place over the duration of a teacher's career (Villegas-Reimers, 2003). What is recognised as good professional development is now broadening beyond classroom competencies to account for a wider range of factors which better reflect teaching roles. Developing survival skills, expanding one's instructional flexibility and exercising leadership and decision making are all recommended aspects to focus on when designing professional development (Leithwood, 1992). Much is made of the benefit of reflection in teacher development (Calderhead & Gates, 2003), however in many cases this only refers to reflection on action in the classroom. Much less is made of the benefits of reflections on character and behaviours and the benefits this may have to teachers in their day-to-day work. Such reflection could enhance performance and wellbeing in addition to developing positive behaviours (Strycharczyk & Clough, 2015).

Several tools exist which may facilitate this kind of professional development and in this study one such strategy will be investigated. This research aims to allow teachers to engage with a mental toughness instrument, the MTQ48 (Clough, Earle, & Sewell, 2002), as a diagnostic tool and reflect on their outcome, assessing what relevance it has to their professional development. In identifying if learning opportunities exist from engaging with mental toughness, its impact for teacher learning purposes can be maximised (Eraut, 1995).

The research takes the form of a pilot case study of teachers in a selective Independent School in Berkshire with 750 pupils between the ages of 11 and 18. The school has 87 teaching staff, of whom 27 participated in the research. The main purpose of this study is to ascertain whether teachers find mental toughness useful in guiding their professional development and the reasons for their perceptions. In addition, the research seeks to establish if there are aspects within the role of a teacher for which mental toughness is most useful. Another purpose was to assess whether teachers perceived improvements to their mental health and emotional wellbeing from engaging with mental toughness. Finally, the study will compare mental toughness with the school's existing reflective professional development provision, the Professional Development Programme, to ascertain whether mental toughness would be a worthwhile addition to in-school professional development provision.

2. Literature Review

2.1 Conceptualisation of Mental Toughness

The concept of mental toughness is not new, and indeed has existed within the sporting domain for many years (Crust, 2008). Initially from work by Loehr (1986), a sports psychologist who described mental toughness as the ability to consistently perform in the upper range of one's talent and skill, regardless of competitive circumstances. Such a definition is problematic within the psychological domain as it is framed in relative terms. All individuals have differing levels of ability and skill and thus this makes understanding mental toughness in absolute terms problematic.

More rigorous psychological research into the concept and its measurement have taken place since, although disagreement and ambiguity remain among the research community when attempting to define mental toughness (Bull, Shambrook, James, & Brooks, 2005). Definitions of mental toughness must still contain a relative element as the concept contains an outcome dimension (Jones, Hanton, & Connaughton, 2007) and what constitutes successful performance will vary between individuals. Jones, Hanton & Connaughton (2007, p.247) define mental toughness as 'Having the natural or developed psychological edge that enables you to, generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places upon a performer and, specifically, be consistent and better than your opponents in remaining determined, focused confident and in control under pressure'. They identified 30 components of mental toughness in four dimensions: Attitude/Mindset, Training, Competition and Post-competition. The individual components included attributes such as focus, pushing yourself to the limit, handling pressure, control of thoughts and feelings and handling failure. While many studies have adopted this model of mental toughness, further studies note discrepancies with these findings (Crust, 2008). While Jones, Hanton & Connaughton (2007) have sought to address some of the confusion surrounding defining the construct, they may have identified aspects of mental toughness that are different to those in earlier work.

An important limitation with the work discussed thus far is that much of it has come from the study of elite athletes (Loehr, 1986), (Bull, Shambrook, James, & Brooks, 2005), (Jones, Hanton, & Connaughton, 2007). This produces a fundamental assumption that all successful athletes are mentally tough, without any attempt to assess the mental toughness of participants. It is entirely possible that other external factors may have led to their success, such as their physiology or their ability. Mental toughness has been described as one of the most used but least understood concepts in sports psychology (Jones, Hanton, & Connaughton, 2002). Inappropriate use of the term mental toughness by coaches, sports commentators, fans and athletes (Nicholls, Polman, Levy, &

Backhouse, 2008) within the sporting domain has not served to separate mental toughness from winning and losing, consequently it has often been linked to aggressive and highly competitive behaviour. A further area identified by researchers is the idea that while a general framework for mental toughness would be useful, there may well be different kinds of mental toughness applicable in different environments (Jones, Hanton, & Connaughton, 2007); for instance, the difference between mental toughness in a temporary high-pressure situation and mental toughness over a long period of commitment or training (Bull, Shambrook, James, & Brooks, 2005). Recent developments have identified that to truly understand an athlete's mental toughness, their responses to pressure and adversity in situations outside performance in a sporting context should be studied by researchers (Crust, 2008). This has resulted in a broadening of psychological research into the applicability of mental toughness into other environments beyond sport.

Subsequent attempts to define mental toughness have been more character based, where mentally tough individuals have a 'high sense of self-belief and an unshakeable faith they control their own destiny, these individuals can remain relatively unaffected by competition or adversity' (Clough, Earle, & Sewell, 2002, p.38). Although this definition came about through work done in the sporting domain, it has become transferable beyond the realms of sport. They proposed a 4C's model of mental toughness comprising challenge, confidence, commitment and control, which has been extensively validated, and this is discussed further in the following chapter. The challenge component refers to the extent to which an individual sees challenges as opportunities, identifying problems and setbacks as a means for self-development. The confidence aspect, which addresses the extent to which an individual believes they have the capability to do what they need to do, is divided into two subscales. An individual with high interpersonal confidence will speak up in group situations and be able to cope with difficult or awkward people. Confidence in abilities refers to individuals who believe they are capable and require little external validation from others. Commitment describes an individual's ability to persevere despite any problems that arise and will make and keep promises to others and themselves that they will complete tasks. Finally, the control component is divided into two subscales. Emotional control is an ability to manage emotions and anxiety when faced with difficult and unfamiliar situations. Life control relates to the individual feeling they can make a difference and their plans will not be disrupted by factors outside their control.

This definition and model were refined further by Strycharczyk and Clough (2014) as 'The personality trait which determines, in large part, how individuals respond to stress, pressure, challenge and change irrespective of prevailing circumstances.' They identify mental toughness as a "plastic" personality trait, an aspect of an individual's character that, while broadly fixed, can change and be

changed if individuals can learn to adapt to new behaviours. The term “plastic” has emerged from the debate surrounding whether mental toughness is stable and trait like, or a set of context specific skills that can be manipulated and developed through training (Crust & Azadi, 2010). Another aspect of this definition which addresses previous issues in defining mental toughness is the inclusion of the phrase ‘in large part’. In so doing there is an acknowledgement of the other factors, independent of mental toughness, such as environment, skills, interest or resources, that can account for differences in outcomes and responses to stressors and pressures.

2.2 Relationships with other models

Mental toughness is a unique construct within the psychological domain, although it shares ground with several other related ideas. The 4C’s model of Clough, Earle & Sewell (2002) is grounded within work done by Kobasa (1979) on the subject of Hardiness. The three main components of Hardiness, are control, commitment and challenge (Maddi, 2004), which are also three of the four components in the model of mental toughness. The idea of confidence is not included within the Hardiness model and is what separates mental toughness from Hardiness. The two subscales of confidence identified in the mental toughness model are an important aspect of personality which can explain differences in individuals’ performance and their responses to stress and pressure that hadn’t previously been considered in Hardiness models.

Resilience is the other important concept with a close affinity with mental toughness and has been defined as the relative resistance to psychosocial risk experiences (Rutter, 1985), referring to an individual’s ability to bounce back or cope successfully despite substantial adversity (Rutter, 1999). Resilience has been described as a dynamic process where a series of protective factors, competencies or abilities may be available for a person to use. Jackson and Watkin (2004) suggested that key elements of resilience were the ability to use the impact of adversity as a resource for moving forward, focusing on the things that can be controlled. Recognising one’s own beliefs and thinking flexibly to manage the emotional and behavioural consequences effectively was identified as the most important aspect of resilience. These two aspects sit well within the model of mental toughness, and can explain why the two terms are frequently mistaken for each other, however there is an important distinction between resilience and mental toughness. Resilience, to some extent, is a passive quality where an individual will be faced with an adverse situation and still complete some or all of what they set out to do, without necessarily being positive about it. Within the mental toughness model, resilience is made up from the control and commitment subscales, which refer to the ability to stay focused on tasks whilst remaining in control of emotions and objectives (Earle & Clough, 2014). Mental toughness adds the components of challenge and confidence to resilience. Resilience remains a positive construct as it keeps individuals going when

faced with difficulty, although potentially without enjoying it. Mental toughness therefore adds the desire to seek out challenging situations and thrive in them, which makes it a more proactive construct.

Situated close to resilience is the idea of self-efficacy, as resilient people will believe in themselves and as a result, build others' confidence in them, placing them in line for success and more opportunity (Jackson & Watkin, 2004). Within the mental toughness model, self-efficacy is much more closely linked with the confidence subscale; indeed self-efficacy can regularly be mistaken for self-confidence. The fundamental difference between the two is that confidence refers to the strength of a belief whereas self-efficacy focuses on at what that belief is directed (Bandura, 1977). Bandura (1986) suggests people with a strong sense of self-efficacy are the product of the social learning process, and suggests ways in which learning could take place. Succeeding oneself or by watching others succeed, referred to as vicarious experiences, are both important aspects of social learning. In addition, verbal persuasion, where outcomes are changed by encouragement from others and reducing emotional arousal, allows for more rapid individual development. Bandura (1989) also suggested that in achieving mastery experiences, performance improves, and this then results in greater feelings of mastery, known as the virtuous circle. This makes the construct of self-efficacy fundamental in supporting the notion that mental toughness is a developable trait.

Another theme that ties in with the construct of mental toughness is the idea of learned helplessness (Seligman, 1972; 1975), where a continuum exists between two extremes: learned optimism and learned helplessness. At the lower end, when faced with adversity an individual will choose to act helplessly and feel out of control, when they often have the capability to overcome the adversity. Such behaviour will have been learned, where people may have had tasks completed for them, causing them to be unable to deal with failure and simply accept their helplessness and consequently develop behaviours of extreme caution and risk-aversion. The outcome of this is continued poor performance and passive behaviour, which individuals attribute to their own inadequacies (Peterson & Barrett, 1987). At the other end of the continuum is learned optimism, where opportunity is everywhere but resilience is needed to take advantage of them. The link with mental toughness becomes clear as such a view of the world would produce feelings of control and confidence, before ultimately producing optimism. These feelings of control are relevant to the mental toughness model as these individuals will associate their success with internal factors of ability and effort (Weiner, 1972). This allows reflections on failure to be either not having the ability or not trying hard enough, with the opposite being true for successful outcomes.

A further model associated with the attribution of success and intelligence, which took Seligman's ideas forward, is mindset. Proposed by Dweck (2012), who suggested a continuum from those who believe that their success was due to their ability alone, to those who attributed success to hard work and training. Attributing success to ability is known as "fixed mindset", and attributing success to how much effort was put in is known as "growth mindset". The characteristics of growth mindset are synonymous with the mentally tough, where individuals are less sensitive to setbacks and are more likely to approach life as a challenging learning experience. Feelings of value and development have a synergy with mindset and mental toughness where individuals believe they can change and make a difference. While there are many obvious similarities between mental toughness and mindset, there is an argument that mental toughness has a greater focus on accepting the world as it is and visualising the future, rather than trying to reframe the present into a more positive light (Strycharczyk & Clough, 2015).

The ideas of mindset and learned helplessness have been important in developing the model of mental toughness; the challenge aspect of mental toughness can be easily explained from these works, where learned helplessness will prevent people from accepting challenge because of the fear of failure, conversely those with a growth mindset will view challenge as an opportunity for personal development.

An aspect of challenge that has not yet been discussed is achievement motivation, which describes the need people have to achieve (Murray, 1938). It has been suggested that these needs can be learned from the environment, from feedback and from modelling, providing yet more evidence that mental toughness is a developable trait. Those with high achievement motivation will naturally seek out domains where they can achieve, in the same way that where individuals find an activity challenging and rewarding, they will seek out other similar activities (McClelland, 1962). Additional reasons exist as to why individuals may accept challenges. One such reason is to maintain a sense of self-worth and belonging in a society that values achievement, seeking approval from others (Covington, 1992). Individuals are more likely to seek out challenge if they can accomplish deeds or provide services to the larger group to which they belong (Covington, 2009). Importantly, those who have a high sense of self-worth and are success-oriented will define success as being the best they can be, irrespective of the achievements of others. They value advancing their current skills and understanding through diligence and hard work (Covington, 2000). Parallels self-worth theory shares with mental toughness are clear; not only will individuals accept challenge more readily they will also believe they are worthwhile and capable of making a difference, giving them strong feelings of control.

Personal development can only take place with an element of goal and target setting, which must then be kept, bringing in the commitment element of the mental toughness model. Where goals are postponed, personal development is hindered through procrastination, which can come about through an individual's desire to avoid failure and looking foolish (Ferrari & Tice, 2000).

Procrastination can also be understood from personality traits, where it is supposed that humans have five dominant personality traits, known as the "big five" (Costa & McCrae, 1992). These are extroversion, agreeableness, conscientiousness, neuroticism and openness. The conscientious, that is those that are unlikely to procrastinate and, with greater commitment, will be more self-disciplined, careful and purposeful. Interestingly, this attribute translates across all categories of work, and tends to be more common in those in better jobs and earning higher salaries (Earle & Clough, 2014). Also, those with higher conscientiousness suffered more when faced with failure (Boyce, Wood, & Brown, 2010). It is important, therefore, to be aware of the darker side of commitment in the mental toughness model, where those who have high commitment are more likely to succeed but also are more likely to suffer should they fail.

Goal setting is the easier element of commitment and one of the primary drivers of behaviour.

Actioning a desired behaviour requires a complex decision making process involving attitudes to the behaviour, perceptions of others and control over the behaviour itself (Ajzen, 1985). It has also been identified that there is a distinct difference between having the intention to instigate a behaviour and exhibiting the behaviour itself (Ajzen & Fishbein, 1980). Commitment also has a role in bridging the gap between intention and behaviour and is therefore highly relevant to the professional development and wellbeing of teachers (Strycharczyk & Clough, 2014).

2.3 The gap between theory and practice

While mental toughness is grounded in much reputable psychological literature, uncertainty remains over exactly how it develops. The dominant suggestions are that it is acquired through environmental influences, or taught through training (Gordon, Gucciardi, & Chambers, 2007). Initial research seemed to suggest that mental toughness was principally developed through training (Bull, Albinson, & Shambrook, 1996), (Goldberg, 1998), however it has been suggested that these are not based on a sound theoretical grounding (Crust, 2008). Instead, significant evidence has been generated from the idea that environmental factors play a role in developing mental toughness. It was identified that there were two key environmental influences; upbringing and transition (Bull, Shambrook, James, & Brooks, 2005). Participants in this research reported parental influence and childhood background in relation to upbringing. Transitional influences included being exposed to new and challenging environments and being able to experience and learn from failure. Mental toughness has been found to increase with age and managerial responsibility, potentially providing

further evidence for the case of environmental factors being significant in developing mental toughness (Marchant, et al., 2009). Further research has proposed that other environmental factors surrounding the motivational environment, such as enjoyment and mastery, have a significant impact on transition (Connaughton, Wadey, Hanton, & Jones, 2008). It was identified that mastery was more important than outcomes in developing mental toughness, and moving forward it is therefore useful to consider what the most suitable environment is for the development of mental toughness.

With the development of models and instruments to measure mental toughness the possibilities for research have increased and more targeted knowledge can be acquired. It is suggested that exploratory case study research would be most useful in identifying the needs of individuals and advancing the knowledge base of mental toughness (Crust, 2008). While psychologically acceptable measurement of mental toughness is now possible, the ambiguity surrounding the construct has made identifying behavioural manifestations of mental toughness challenging. Research has been conducted in the sporting domain to observe the mental toughness of others in five categories: adversity response, over-achievement, effort, enthusiasm and skill (Davis & Zaichkowsky, 1998). This research should be approached with caution as the categories were unjustified and quantifiable analysis was impossible owing to no standard checklist being produced. However, should such an inventory be created it could be used to allow the development of certain mentally tough behaviours using role models and vicarious experience, already established as important in the development of mental toughness (Crust, 2008; Connaughton, Wadey, Hanton, & Jones, 2008; Dweck, 2012).

In much of the literature, mental toughness is identified as a positive characteristic, which links with successful outcomes. There is evidence to suggest that there are negative aspects to being mentally tough, identified in the sporting context by mentally tough individuals tending to perceive their injuries as less severe, possibly playing on through injuries and doing further damage (Levy, Polman, Clough, Marchant, & Earle, 2006). Outside sport the mentally tough may take unnecessary risks and struggle with prioritisation, possibly instigating changes for the sake of it rather than making improvements. They can intimidate others with their extreme confidence and can be perceived as arrogant or a bully by dominating social situations or not tolerating others with different beliefs or abilities. Those with higher mental toughness can also have a propensity to micro-manage and can struggle communicating with others, sometimes failing to see their own weaknesses (Strycharczyk & Clough, 2015). It is important to understand that while mental toughness is a desirable trait, in order to be genuinely effective in improving individual performance it must also be coupled with self-awareness, reflection and emotional awareness.

2.4 Mental toughness in teaching

Given the evidence already presented that mental toughness is a developable trait at all ages, research has begun to move into the sphere of education, as with many positive psychological ideas, the earlier the development the better (Strycharczyk, 2014). Currently, much of the research into mental toughness focuses on the benefits to children, although emerging research is suggesting that it has applications for teaching staff also. Mental toughness has been trialled as a selection tool for new teachers; where it was run alongside existing selection procedures, generally it was found that the more mentally tough candidates completed the training programme (Earle & Clough, 2014). The same research also found that those with high mental toughness were perceived very positively by existing teachers and seen as acceptable by the students. It is worth noting that while those with moderate mental toughness were perceived less favourably by existing teachers, they were viewed more positively by the students than those with high mental toughness. These findings indicate the complexity of mental toughness as a psychological construct and highlight the need for self-awareness on an individual level.

It seems legitimate that teachers may already perceive themselves having high mental toughness, owing to the challenging nature of the teaching profession (Travers & Cooper, 1996). However, in one piece of research on 50 teachers, where 70% perceived themselves to be mentally tough, mental toughness was measured and the average mental toughness was closer to mentally sensitive than tough (Strycharczyk, 2017). Potentially, this could be from the poor understanding of mental toughness outside the literature, although it raises the case for making teachers more aware of mental toughness to allow genuine personal and professional development to take place. The same research found a relationship where those with high confidence as a teacher correlated with higher mental toughness. Consequently, it has been suggested that mental toughness could assist and protect teachers when dealing with challenging situations in a classroom environment, such as poor behaviour. Teacher engagement with mental toughness could also be of benefit to the pupils they teach by observing and learning mentally tough behaviours and attitudes through vicarious experience.

Commitment is an especially relevant area of mental toughness in teaching as it is a crucial predictor of teacher performance, absenteeism, burnout and staff turnover and, consequently, student motivation and outcomes (Malm, 2009). Teacher commitment is regarded as crucial in planning for future success in education, as a teacher with high commitment levels is more likely to engage in co-operative, reflective and critical practice (Crosswell & Elliot, 2004). The benefits of improving this aspect of mental toughness in teachers are extensive, in that teachers' performance levels will increase, while schools will benefit from a passionate and engaged workforce.

Classroom behaviour is a key factor in what makes the teaching profession stressful and challenging for practitioners (Clark, 1980). While the causation of stress is subjective, other factors can include working conditions, time demands and staff relationships, all of which can have detrimental impacts for the mental health of teachers. Correlations have been found with the Mental Toughness Questionnaire 48 (MTQ48) instrument for measuring mental toughness and the General Health Questionnaire (GHQ) which measures mental health (Strycharczyk & Clough, 2015). It was indicated that higher levels of mental toughness correspond with better mental health. From this research, a sample of 83 teachers, the more mentally tough teachers were less likely to report state anxiety and used a wider range of adaptive strategies for difficult situations such as coping techniques, planning and restraint. Mental toughness has been found to improve wellbeing in a variety of other social contexts, for instance predicting the wellbeing of undergraduate students (Stamp, et al., 2015), explaining negative humour in twins (Veselka, Schermer, Martin, & Vernon, 2010), as well as understanding perceptions of bullying within the workplace (Coyne, Clough, Alexander, & Clement, 2006). In addition, evidence has been found to suggest the mentally tough are more aware of their work-life balance and understand how it contributes to their success (Jones, Hanton, & Connaughton, 2007). Improving wellbeing and mental health of teachers using mental toughness could have significant implications for teacher effectiveness, providing increased confidence to deal with challenging situations and improving life satisfaction.

2.5 Approaches to teachers' professional development

Professional development is a wide-ranging term which refers to the growth of an individual within a professional role (Villegas-Reimers, 2003). Modern research suggests new models and paradigms for teacher training (Cochran-Smith & Lytle, 2001), moving away from the idea of 'teacher training', where new teachers would be given the technical skills needed for teaching and sent out to 'practise'. Similarly, learning experiences for teachers are no longer simply in the form of 'staff development', which is the provision of in service training to improve the expertise of teachers. This is an important distinction to recognise within this research, as professional development refers to both the technical skills and knowledge as well as the non-cognitive social and emotional skills required in teaching. Recent conceptualisations have acknowledged that both informal and formal learning opportunities are important for teacher growth and development (Borko, 2004; Little, 2002). Opportunities for professional development, identified by Guskey (2000) occur every time a lesson is taught, assessment administered, curriculum reviewed, or a professional journal or magazine is read. This serves to highlight the extent to which professional development is embedded in teachers' everyday lives.

The emphasis on teacher learning has grown over recent years, primarily because of the increased understanding of its relationship with student outcomes (Ingvarson, Meiers, & Beavis, 2005). In recent years two key developments are taking place within teacher education; the first has been a clearer identification of the purpose of training, often categorised into those which seek to raise awareness or those that seek to elicit a behaviour change (Joyce & Showers, 1988). The second has been the recognition that good professional development must allow for sustained practice, reflection and coaching that is rooted within the working environment (Sparks, 2002). However, it has been acknowledged by Hargreaves (1998) that teaching is an emotional profession, which reaches the core of the teaching practitioners' senses of value and self-worth. Where the personal and professional aspects of teaching diverge, this can lead to teacher anxiety where teacher performance becomes separated from personal feelings (Hargreaves & Tucker, 1991).

In the UK, teachers are assessed against a list of professional competencies known as the Teachers' Standards (Department for Education, 2011). They set out a framework within which teachers should operate and how they and others can assess their practice. Sadly, there is little account for professional development set out within this framework as it is only accounted for by a teacher increasing the breadth of knowledge, skill and understanding which they demonstrate in meeting these standards. It can be argued such an approach favours evidence gathering and 'box-ticking' ahead of genuine individual improvement as a teaching practitioner, as such a behavioural-heavy framework has little consideration of the emotional and attitudinal qualities of an effective teacher (Ryan & Bourke, 2013). In appreciating the evidence for personal sources of improved teacher performance and enthusiasm, there is clearly a foundation for investigating whether teachers will consider engaging with mental toughness in guiding their development as a teaching practitioner.

Reflection is a vital part of teacher development, giving the opportunity to take responsibility for their own development, appraise personal beliefs about good teaching and to adopt an analytical approach to their practice (Calderhead & Gates, 2003). In doing this, teachers will feel motivated and empowered to take a more active role in developing education. Despite its uses, reflection can be too process orientated where it is carried out for its own sake rather than to bring about development and must be thought about when designing teacher education (Wideen, Mayer-Smith, & Moon, 1998). Mental toughness may be able to address this by providing an alternative vehicle to facilitate more meaningful reflection rather than relying on often subjective recollections of experiences. This study takes place in a single school, seeking to address this issue and establish whether mental toughness can enhance professional development provision in schools as well as adding to understanding of strategies to promote teachers' social and emotional growth.

3. Methods

3.1 Introduction

This chapter defines the philosophical foundations which underpin this research and explains the approach taken to operationalising the study and the case study strategy used for collection and analysis of data. It will describe in detail the instrumentation used, particularly the MTQ48 questionnaire, a psychometric test measuring mental toughness. Ethical considerations are explored as well as an identification and explanation of the limitations of this research.

3.2 Philosophy

Considering the philosophical foundation is particularly pertinent in educational research, where a dichotomy exists between theory and practice, which poses challenges to understanding observed phenomena. Owing to the complexity of the educational context it is important to acknowledge and accommodate the contentious issues and state the theoretical position of the research (Waring, 2012). Research is therefore situated in 'paradigms' as defined by Kuhn (1962), which offer a way of looking at social phenomena and a system of assumptions which explain the researcher's conception of the world and the interrelationships within it. The researcher's interpretation of the social world is at the beginning of all research and is referred to as ontology. Ontological positions exist along a continuum from realism, where social reality imposes itself on individuals' consciousness, to constructivism, where multiple realities exist from the product of individual consciousness (Cohen, Manion, & Morrison, 2011). This study draws on elements from both realist and constructivist ontologies and sits in between them. The realist position supposes there is one singular objective reality, independent of individuals' perceptions of it. The constructivist view is that individual social contexts are unique and that all knowledge is subjective. Such a position is necessary for achieving the aims of this research as it seeks to understand individuals' perceptions of what is assumed to be a measurable social reality, in this case mental toughness.

A second assumption that must be made is that of an epistemological nature, which relates to the creation and dissemination of knowledge, seeking to explain how that which is assumed to exist can be known. Epistemological positions are also found along a continuum from positivism, where knowledge is objective and tangible, to interpretivism, where direct knowledge is impossible and all knowledge is subjective and unique (Burrell & Morgan, 1979). Similar to the ontological foundation of this research, the epistemological stance draws upon both the positivist and interpretivist traditions. Within positivism the investigator is separate from the research and so the findings are considered to be 'true' (Waring, 2012), mirroring investigations undertaken by natural scientists, where the scientist is an analyst and interpreter of their subject matter (Cohen, Manion, & Morrison,

2011). Such an approach is appropriate for finding themes in search of the wider laws (Burrell & Morgan, 1979) which explain mental toughness. While it is a suitable epistemological position to approach this research from, positivism is a challenging framework to use to explain human behaviour. Considering this, an interpretivist viewpoint is also needed in this investigation to explain teachers' perceptions of mental toughness. One of the strengths of this viewpoint is that it can account for individuals' interpreting their own experiences to develop a view of the world in their own context (Cohen, Manion, & Morrison, 2011). While this research sits closer to interpretivism on the epistemological continuum, a mixed methods approach will be needed to reflect this position.

3.3 Approach: Mixed Methods

Two separate approaches are needed to this research, initially deductive where the construct to be measured is already predefined, in this case, mental toughness. In deductive research the goal is to test theory, and as such some data collection will use quantitative methods (Kondracki, Wellman, & Amundson, 2002). Bryman and Bell (2011) state that inductive (theory generating) and deductive methodologies be thought of as tendencies rather than being mutually exclusive. An inductive approach will therefore also be used to understand teachers' perceptions and views on the mental toughness instrument. As such, there will be some qualitative data collection to seek to propose the uses of mental toughness in the teaching profession. The mixed methods approach should enable data to gather a broad overall picture, from which a more detailed analysis could take place and increase reliability of the study.

3.4 Operationalization

The process of operationalization involves defining the indicators of constructs being measured and translating the research question into particular questions to which answers can be given (Cohen, Manion, & Morrison, 2011). In breaking down the research question into sub-questions, there are a number of issues that can be investigated in explicit terms.

Research Question:

How do individual teachers and the whole school use the profiles generated from this instrument (MTQ48) to identify individual and whole school CPD needs?

Sub-questions:

- Do teachers find profiles from the MTQ48 affirming and worthwhile?
- How useful is mental toughness to teaching roles?
- What are the mental health implications of mental toughness in teaching?
- Does mental toughness help guide teachers' reflection?

3.5 Strategy and Research Design: Case Study

As a practising teacher, the most practical way to approach this research was through a case study. A case study involves an empirical observation of a phenomenon in its real life context using multiple sources of evidence (Robson, 2002) (Yin, 1984). Within research a 'case' can take many forms (Day Ashley, 2012), which may vary from individuals to policies or events. What unites all case studies is the analysis of a 'bounded system', where the characteristics of the phenomenon being studied are analysed in the context within which it is situated (Cresswell, 1994).

A descriptive, intrinsic case study has been chosen as the aim is to understand the case of the school within which I work, and to describe the phenomena seen in the data gathered (Stake, 2005). Other designs could have been selected for example a cross-sectional survey which would have allowed for comparison between different groups, had the study had a larger sample size. A cross-sectional approach would also have allowed for greater generalisation. However a case study is the most suitable and feasible way to answer the research question, which seeks meaning and understanding from the data within the context of the school. While this case study is individual, studying only one unit, this study still has the capacity to be iterative, potentially leading to further research.

The advantage of adopting a case study design is that by analysing the data in the context of its use it will be more relatable to reality and may link to similar cases. It is also suitable for providing easily intelligible findings on a small scale (Nisbett & Watt, 1984).

In this study the research takes the form of three separate phases, discussed and analysed in more detail in section 3.6.2:

1. MTQ48 Questionnaire
2. Follow up questionnaire
3. Interview with the Senior Leadership Team (SLT)

3.6 Data Collection and Analysis Methods:

3.6.1 Sampling

In order to fulfil the objectives of this research it would have been most appropriate to sample all the teaching staff in the school, which would have totalled 87. A sample was used owing to the need to have informed consent from all participants, all staff were invited to partake and a non-probability sample of 27 staff was used. A non-probability sample is any form of sampling which is not undertaken using the laws of probability sampling (Bryman, 2015), that is to say that each individual in the population does not have an equal chance of being chosen. This is appropriate for small scale research, and was the most practical approach that could have been taken (Cohen,

Manion, & Morrison, 2011). The staff participating self-selected and consisted of a range of experiences with a variety of teaching experience. Of the 27 participants there were 14 males and 13 females. 4 had under two years' experience, 3 teachers had been in the profession between three and eight years. 7 participants had between nine and fourteen years' experience and 13 had over fifteen years' experience, presenting a slight bias towards those with more experience although broadly reflective of the teaching demographics at the school.

The sample is a convenience sample, which is sometimes inevitable (Morrison, 2006), however it is important to consider the motivation of volunteers and that despite being well intentioned, they may not be a representative sample of the wider population. Such an approach does prevent generalisation beyond the sample itself (Bryman, 2015), although this is refuted by Flyvbjerg (2006), who suggests by using the principle of 'falsification' generalisation is possible. This means that until an instance of the generalised proposition being false is found, the proposition can be accepted as valid. However during the SLT interview, data on mental toughness in directing whole school staff development will be achieved, which will go some way to mitigating the shortcomings of the sampling in this research.

3.6.2 Instrumentation

3.6.2.1 *The MTQ48 Questionnaire*

The MTQ48 (Clough, Earle, & Sewell, 2002) is a 48 item inventory that gathers responses to statements on a Likert-type scale ranging from (1) Strongly disagree to (5) Strongly agree. It provides participants with a written report containing feedback and a numerical score of overall mental toughness and for six subscales: emotional control, life control, commitment, challenge, confidence in abilities and interpersonal confidence (Nicholls, Polman, Levy, & Backhouse, 2009). Example items of statements include "I don't usually give up under pressure" (commitment) "Challenges usually bring out the best in me" (challenge) "I can usually control my nervousness" (emotional control) "I generally feel in control" (life control) "I am generally confident in my own abilities" (confidence in abilities) "I usually speak my mind when I have something to say" (Interpersonal confidence) (Crust & Swann, 2011).

The MTQ has proven to be a reliable measure of mental toughness; testing took place during development of internal consistency, which looks at the way in which items cluster. This means that if a participant scores highly on one aspect of mental toughness you would expect them to score highly on all aspects in that category. Cronbach's alpha scores, shown in Table 3.1, were calculated for all subscales and all were found to be at or above .70, the acceptable quality level for social science, supporting the homogeneity of each subscale and the MTQ48 as a whole (Strycharczyk & Clough, 2015). Other post development tests have shown good internal consistency (Kaiseler,

Polman, & Nicholls, 2009), (Nicholls, Polman, Levy, & Backhouse, 2009), (Levy, Nicholls, & Polman, 2012), however the latter found the alpha coefficient for emotional control to be below .60 and therefore outcomes from this aspect should be treated with caution. Reliability was also established from the test-retest reliability, where the questionnaire was completed by the same participants twice after a suitable gap; a sample of 108 students took part in this test. Test-retest reliability was high for all components, ranging from .80 for challenge to .87 for emotional control measured by Pearson's correlation coefficient.

Table 3.1 - Scale reliability of the MTQ48 (Strycharczyk & Clough, Developing Mental Toughness, 2015)

MTQ48 Subscales	Number of Items	Cronbach's Alpha
Challenge	8	.71
Commitment	11	.80
Control	14	.74
Emotional control	7	.70
Life control	7	.72
Confidence	15	.81
Confidence in abilities	9	.75
Interpersonal confidence	8	.76
Whole scale	48	.91

The MTQ 48 has been shown to be a psychologically acceptable instrument for the measurement of mental toughness, a study of construct validity during testing found by a correlation analysis that it was related to other similar concepts (Clough, Earle, & Sewell, 2002). Correlations were in the expected direction and easily explained; for instance higher mental toughness correlated positively with satisfaction with life and self-efficacy, a negative correlation was seen between mental toughness and trait anxiety. Further studies have also identified face validity, where participants accepted the outcome of the instrument and criterion validity, the extent to which the measure links to other external measures. It has been found to relate to pain tolerance (Crust & Clough, 2005), managerial success (Marchant, et al., 2009) and coping (Nicholls, Polman, Levy, & Backhouse, 2009). Testing by Horsburgh, Schermer, Veselka and Vernon (2009) has found that outcomes from the MTQ48 linked significantly with the 'Big-5 theory' of personality traits (Costa & McCrae, 1992). They also undertook a confirmatory factor analysis, a more detailed statistical measurement of the instrument's construct validity. From a sample of 438 participants they were able to provide support to Clough, Earle and Sewell's (2002) six factor structure of mental toughness.

Other measurements of mental toughness do exist, such as the Sports Mental Toughness Questionnaire (SMTQ) (Sheard, Golby, & Van Wersch, 2009), which correlates with the MTQ48. It has been noted in a study that the strength of these correlations is moderate, as while both instruments purport to measure mental toughness on similar subscales, they both contain items that extend beyond the narrow focus of these subscales (Crust & Swann, 2011). The SMTQ has been developed for use in a sporting environment and the same study also concludes that the MTQ48 provides a more comprehensive measure, suitable for use in other settings such as education, which led to its selection for this work. The Psychological Performance Inventory (PPI) (Loehr, 1986), could

also have been used, although its psychometric properties have been criticised as more recent research did not achieve construct validation of the measure from a confirmatory factor analysis (Middleton, et al., 2004).

The MTQ48 was also selected for its administrative advantages; the test was available for completion online and did not take long to complete. This may affect content validity as too brief a test may not cover the domain of mental toughness satisfactorily (Strycharczyk & Clough, 2014). However, usability was an important consideration when designing the research as participants were being asked to complete this in addition to their normal work commitments, rendering a lengthy measure unsuitable. The instrument also produced an individual report for the participants, containing their scores. These scores are based on a 'norm' group which represents the wider population. (Strycharczyk & Clough, 2015). In this instance, the instrument was used in a diagnostic manner for the participants to identify any issues they thought worthy of attention, consider their implications and decide whether to act on them.

3.6.2.2 Follow up questionnaire

The follow up questionnaire was designed to ascertain participants' opinions on their outcome from the MTQ48. It was a 20 question measure, with 3 open questions and 17 closed. These were mainly based on a 5 point Likert-type scale, where 1 = not at all/strongly disagree and 5 = definitely/strongly agree. The questions broadly fell into three general categories: participants' reflections on their outcome, how useful their profile is in guiding their development and how the instrument compared with the current development system at the school, the Professional Development Programme (PDP). A copy of the questionnaire can be found in Appendix 1.

The PDP is a self-appraisal form conducted every year on a biannual cycle between a PDP4, which relates to teaching and learning, and a PDP5, which relates to career development. The form then forms the basis of an interview with the respective Head of Department, in the case of the PDP4, and the Headmaster, in the case of the PDP5. The PDP includes questions such as "list 5 things you feel you do well", "assess the achievement of your previous personal targets" and "which aspects of your role do you most enjoy?" The reason for comparing the instrument with the PDP is that there is clearly a place for self-appraisal as it increases conversations between managers and employees regarding expectations and job satisfaction, as well as increasing engagement in the workplace (Farh, Werbel, & Bedeian, 1988), (Roberts, 2003). However, appraisal can result in too much focus being given to areas where employees perform below the norm, rather than understanding their strengths. Such an approach could focus on genuine development that would stimulate the motivation for the employee to improve their performance (van Woerkom & de Bruijn, 2016). It has also been observed that self-appraisal can leave the act of teaching depersonalised, as it is framed in

terms of only technical skills of instruction, in addition to encouraging self-blame for deficiencies rather than identifying collective responsibility that would foster the pursuit of institutional excellence in education (Lipka & Brinthaupt, 1999). They also note that appraisal can isolate the teacher's personal values beyond the reach of professional development. This forms the rationale for investigating the usefulness of the MTQ48, which has a greater emphasis on an individual's character and values, in relation to the PDP.

3.6.2.3 SLT Interview

As this study takes the form of a pilot study of 27 participants it seemed necessary to gain a broader, whole school perspective by interviewing the school's Senior Leadership Team. A further aim of this was to understand in greater detail the strengths and weaknesses of the school's PDP system and ascertain their perceptions of whether mental toughness could improve this. Finally, as the SLT have overall responsibility for managing and leading the school on a day-to-day basis, the interview was used to instigate some of the practicalities of implementing mental toughness into the school's CPD provision.

The SLT is made up of 7 people, 5 members of teaching staff and 2 support staff, all of whom were present at the interview which took place in one of their twice weekly meetings. In advance of the interview the SLT were given access to anonymised summaries of the responses to a selection of the closed items relating to the PDP on the follow-up survey which all participants had consented to in advance of their participation. In addition, SLT members were also sent 14 questions which would form the basis of the interview. The interview took the form of a semi-structured discussion, where all the themes discussed above were covered but not all the questions sent in advance were asked. Data from the interview emerged in the form of minutes of the conversations which took place. This data collection strategy was used to prevent comments made in the interview being attributable to individuals.

3.6.2.4 Data Analysis

Initially descriptive statistics were used, calculating the mean and standard deviation for Likert-type items in the follow-up questionnaire to establish emerging themes within the data. A further analysis was conducted by collapsing the total number of responses at points 4 and 5 of the Likert scale by adding them together, identifying the number of positive responses to each item. The same descriptive statistics were performed for the non-Likert-type items in the questionnaire. To perform this analysis values were assigned to the responses to these items, on a scale between 'Yes', 'Maybe' and 'No'. 'Yes' was given a value of 3, 'Maybe' a value of 2 and 'No' was given 1. Following this, a correlational analysis using Pearson's correlation coefficient was performed on the Likert-type items in the follow-up questionnaire to ascertain whether there were any important relationships between

teachers' perceptions of the use of the mental toughness measure and aspects of their practice. Finally, qualitative data from items in the follow-up questionnaire and SLT interview were processed into separate documents to facilitate the presentation of a selection of this data in the following chapters.

3.7 Ethics

As previously discussed, mental toughness is not uncontroversial. The term is used widely, and often incorrectly, to refer to any positive attributes that help a person cope with difficult situations or as a casual explanation of sporting success (Patil, 2016). The unfortunate assumption presented by this is that only the mentally tough can achieve success. Such misunderstandings present ethical issues for the research as staff may be unhappy with their outcome from the MTQ48 measure. This presents issues surrounding those to whom the instrument has assigned a low mental toughness score. There was a risk staff may have felt vulnerable and require support because of this and could be questioning their career choice. To conduct the research ethically and sensitively I made myself available to staff for individual conversations, separate from the research, about their outcome from the instrument. In the event of any issues of this nature arising that I was unable to address myself, I was prepared to direct participants toward professional support from the school counsellor or from the school's employee assistance programme, a confidential service run through a third-party company, separate from the school. No participants requested a formal conversation about their outcome from the MTQ48 instrument, however as all the participants were my colleagues, several wanted to informally discuss their outcome with me in passing. These conversations all arose out of the participants' interest in the research, often giving feedback on how they found the instrument to complete and their opinions on the outcome, rather than out of concern. These conversations have nonetheless been treated as confidential and separate to the research.

A further ethical issue was presented by the sensitive nature of the data from the MTQ48, which could be used in appraisal or performance management. This is particularly true as the SLT were involved in this project to give comment on the whole school perspective of the use of mental toughness. They are powerful gatekeepers who have control over important aspects of the participants' lives, such as promotion, training and work allocations (Munro, Holly, Rainbird, & Leisten, 2004). To avoid any performance management related issues no data from the MTQ instrument was shared with SLT. Only anonymous summaries of items relating to the PDP from the follow up questionnaire were shared, with qualitative comments removed to prevent participants' identities being discovered by their use of language.

Beyond these two considerations, no further ethical issues were identified in relation to this research. Participants all gave their informed consent to be involved and were offered the right to decline to answer any question or withdraw at any time. A copy of the consent form can be found in Appendix 2. Any printed documentation related to the survey was presented on a Durham University letterhead and stated that the project was academic research conducted independently in conjunction with Durham University. The follow up questionnaire was sensitive in its design and did not require any personal information such as names, ages or addresses so as not to cause harm, offence or stress to any of the participants. Ethics clearance was granted by Durham University School of Education Ethics Committee and a copy of this approval can be found in Appendix 3.

3.8 Limitations

The principal limitation with this research surrounds generalizability; case studies by their nature of contextual observation of phenomena are non-generalizable to a wider population with statistics. This therefore prevents any proof that the findings will apply beyond the setting in which they are observed. However, case studies can be generalised back to a wider body of literature where procedures have been replicated (Robson, 2002). This is referred to as analytic generalisation, which is concerned with the extent to which the case contributes to the expansion of the existing theory, which could then help other researchers understand similar situations (Yin, 2009).

The generalizability is further limited by the sample, both in terms of its size and the manner in which it was acquired. The non-probability volunteer sample was required owing to the limited access to participants, who needed to be teachers at the school, and it is better to have such a sample than no research at all. It is important to understand that volunteers have a variety of motives for taking part in research, for instance: helping a friend, wanting to benefit society or for more negative purposes such as seeking revenge. It must therefore be acknowledged that volunteers do not necessarily represent the population of teachers in the school as a whole (Cohen, Manion, & Morrison, 2011), as this sample represents under half of the teaching staff employed by the school.

Within case study research it is important for the researcher to be aware of their role as such research can be prone to observer bias (Nisbett & Watt, 1984). This is true in this study as I am also a member of the teaching staff at the school and as such, while not an active participant, I am indirectly linked to the findings of this research. The same bias can come from participants, particularly where their memory is relied upon (Shaughnessy, Zechmeister, & Zechmeister, 2003). This research did require participants to remember how they felt from the outcome of their Mental

Toughness Questionnaire, however to mitigate this participants were provided with a copy of their reports, which they were recommended to revisit before undertaking the follow up questionnaire.

4. Findings

4.1 Introduction

The following chapter presents the results from the follow up questionnaire from the 27 participants. A statistical summary of the data will be presented for all Likert and non-Likert type items. Items of interest are introduced in this chapter, together with a selection of figures to represent responses to some items. Finally, a table of correlations will be presented to indicate relationships between items. The data for all items, including open ended responses, is displayed in full in Appendix 4. Data from the SLT interview is contained within Appendix 5.

4.2 Summary of Results

Table 4.1 is a summary of data collected from the follow up questionnaire, which presents the mean score for each item on a Likert-type scale, where 5 corresponds with the most positive responses (strongly agree/definitely/extremely useful/much better) and 1 refers to the most negative responses (strongly disagree/not at all/not at all useful/much worse). Standard deviations are also given. The final column presents a collapsed total of the number of responses at the two highest points of the scale for each item, where participants gave positive or very positive responses.

Table 4.2 displays two non-Likert-type questions asked, on a 3-point scale with responses of 'Yes' (3), 'Maybe' (2), and 'No' (1), along with the total number who answered 'Yes'. 16 of the 27 participants responded that they would recommend the measure to other teachers, 3 reported they would not. Of the 27, 11 answered that they had identified aspects of their mental toughness they would like to develop, with a further 11 suggesting they had maybe found aspects for development.

Table 4.1 - Summary of responses to Likert-type items in follow up questionnaire

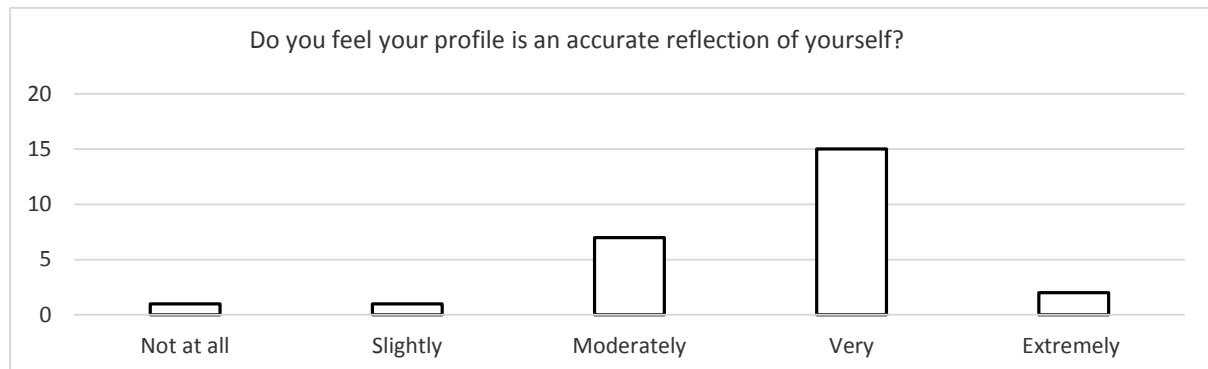
Questionnaire item	Mean	Standard deviation	Collapsed total of 4/5
A. Do you feel your profile is an accurate reflection of yourself?	3.62	0.85	17
B. Was completing the mental toughness test a worthwhile use of your time?	3.78	0.93	18
C. Do you feel the outcome and development suggestions from your report improve your emotional wellbeing and mental health?	2.81	1.06	5
D. How useful is your profile in guiding you to reflect on your practice?	3.19	1.04	11
E. How useful do you find your report in identifying your strengths and weaknesses as a teacher and a leader?	3.19	1.08	10
F. How useful has it been in identifying personal development opportunities?	2.89	1.01	8
G. How far do you agree: The report has given you a clearer idea of how you respond to the stressors and pressures you face as a teacher and a leader	3.44	1.01	17
H. How far do you agree: The report has given you increased confidence to seek out challenges as a teacher	3.11	1.15	11
I: How far do you agree: Using mental toughness improves the professional development system at school	3.52	0.94	12
J: How does this compare with the PDP form in guiding your reflection on your teaching practice or your professional development?	3.56	1.00	15
K: How likely are you to reflect on the outcome when setting personal or professional goals?	3.00	1.11	12
L: Do you find this approach using mental toughness more helpful than the PDP?	3.36	0.91	10
M: How far do you agree: The mental toughness report has been more useful in identifying personal and professional development opportunities than my PDP.	3.19	0.98	10

Table 4.2 - Summary of responses from non-Likert-type items in follow up questionnaire

Questionnaire Item	Mean	Standard Deviation	Number of 'Yes'
Would you recommend the mental toughness measure to other teachers?	2.48	0.70	16
Have you identified aspects of your mental toughness profile you would like to develop?	2.22	0.75	11

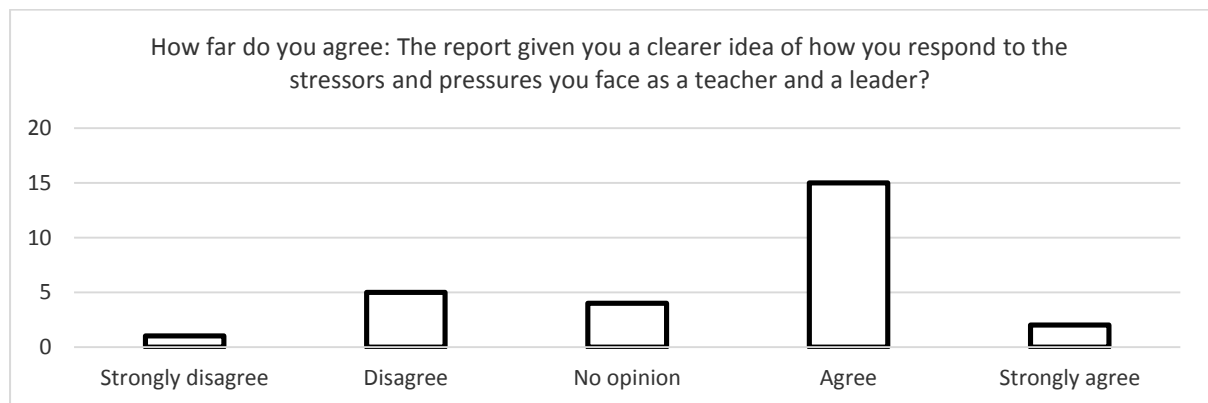
Figure 4.1 indicates that 15 of the 27 participants agreed their profile generated by the instrument was an accurate reflection of them, with a further 2 stating they found it extremely accurate.

Figure 4.1 - Responses to item A of the follow up questionnaire



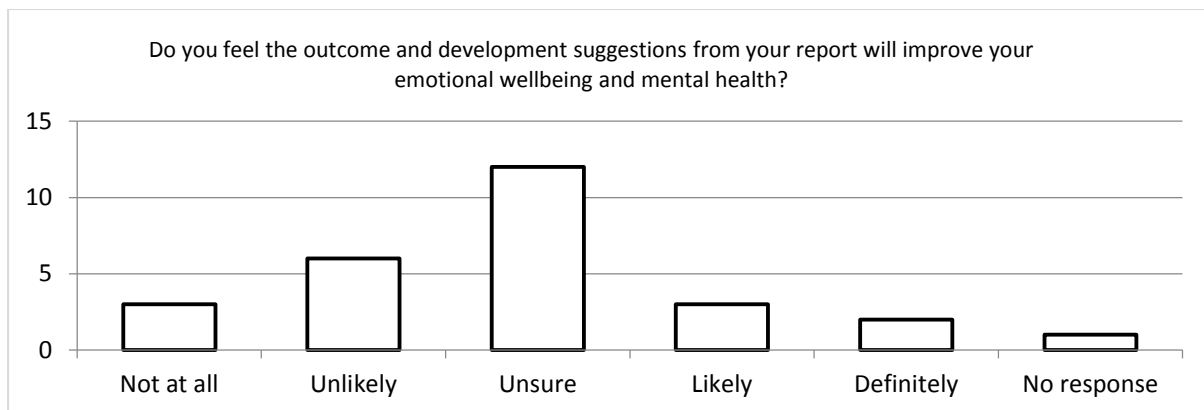
In addition to finding profiles affirming, participants reported that completing the measure was a worthwhile use of their time, 18 out of 27 stating it was either worthwhile or very worthwhile, with a mean score of 3.78 on a Likert-type scale, the highest for any item on the questionnaire. Shown in Figure 4.2 is the impact the measure had on giving teachers a greater understanding of how they respond to the stressors and pressures they face in the profession. 17 of the 27 agreed or strongly agreed they understood this more clearly, the implications of which will be discussed in the following chapter.

Figure 4.2 - Responses to item G on the follow up questionnaire



Participants appear unsure of mental health benefits from using the MTQ48, as shown in Figure 4.3. Of the 27 teachers, 5 reported it would make an improvement, with 9 suggesting it was of little or no use in improving their mental health. This item had the lowest average score for any item of 2.81.

Figure 4.3 - Responses to item C of the follow up questionnaire



Respondents also did not strongly perceive personal development opportunities, 8 individuals reported they would find their profile useful or very useful, compared with 10 who stated it would be of little or no use for this purpose. Despite this, 10 of the 27 found the measure more or much more useful in identifying personal development opportunities, compared with 6 who did not. In identifying these opportunities, 13 teachers either agreed or strongly agreed they had gained confidence to seek out challenge from completing the measure, where 9 disagreed. Staff members suggested the measure could improve professional development at the school with 12 suggesting they would reflect on their profile when goal setting, compared with 8 who would not.

The theme of reflection emerges from these results, shown in Figure 4.4, as 15 of 27 participants stated that the measure was either better or much better than the PDP in guiding their reflection on their practice or their professional development. This is a theme that will be discussed in the following chapter. Overall, 12 of the 27 agreed or strongly agreed that using mental toughness improved the professional development system at the school, 3 disagreed and none strongly disagreed.

Figure 4.4 - Responses to item J on the follow up questionnaire

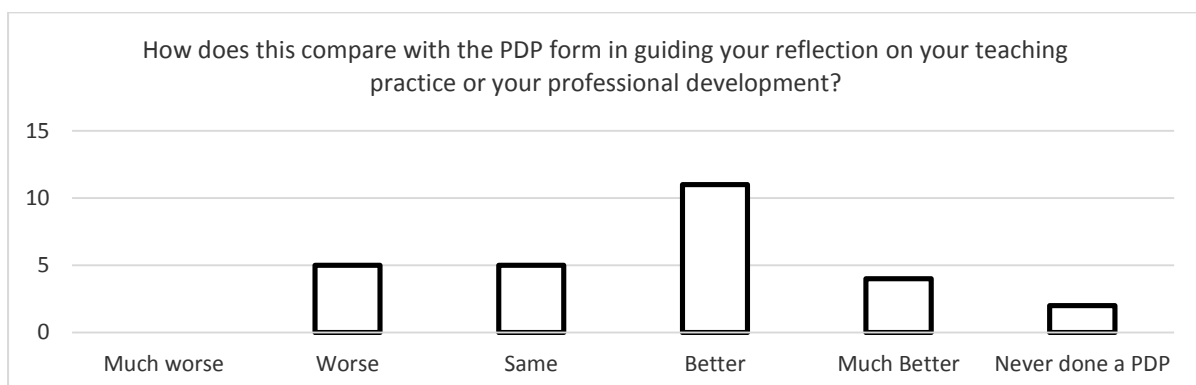


Table 4.3 presents a correlational analysis of the relationships between the items on the follow-up questionnaire. Generally, correlations are of the strength and direction expected, for example the correlation of .70 between those who found their profile accurate and those who were likely to reflect upon the report when setting goals and consequently found the measure a worthwhile use of their time. These were also the individuals who found the measure more helpful than the PDP. It is clear there is a link between reflection and development, where a correlation of .76 exists between how useful teachers found the measure in guiding their reflection and how useful they found it to identify development opportunities. Whilst the raw results suggest teachers did not envisage the measure improving their mental health, strong positive correlations can be observed between perceived improvements in mental health and use of the measure in guiding reflection (.79) and confidence to seek out challenge (.79). Further correlations exist between reflection, identifying opportunities for development (.71) and confidence (.72). These ideas will be explored further in the following chapter.

Table 4.3 - Correlations between 13 items on the follow up questionnaire using Pearson's correlation coefficient

Questionnaire item	A	B	C	D	E	F	G	H	I	J	K	L
A. Do you feel your profile is an accurate reflection of yourself?	-											
B. Was completing the mental toughness test a worthwhile use of your time?	.75	-										
C. Do you feel the outcome and development suggestions from your report improve your emotional wellbeing and mental health?	.54	.56	-									
D. How useful is your profile in guiding you to reflect on your practice?	.65	.60	.79	-								
E. How useful do you find your report in identifying your strengths and weaknesses as a teacher and a leader?	.60	.69	.72	.66	-							
F. How useful has it been in identifying personal development opportunities?	.58	.58	.76	.71	.62	-						
G. How far do you agree: The report has given you a clearer idea of how your respond to the stressors and pressures you face as a teacher and a leader	.51	.35	.63	.65	.66	.58	-					
H. How far do you agree: The report has given you increased confidence to seek out challenges as a teacher	.52	.60	.79	.72	.66	.77	.55	-				
I: How far do you agree: Using mental toughness improves the professional development system at school	.47	.71	.56	.53	.67	.55	.40	.69	-			
J: How does this compare with the PDP form in guiding your reflection on your teaching practice or your professional development?	.55	.57	.53	.47	.55	.70	.41	.69	.59	-		
K: How likely are you to reflect on the outcome when setting personal or professional goals?	.70	.74	.54	.67	.61	.62	.58	.57	.67	.52	-	
L: Do you find this approach using mental toughness more helpful than the PDP?	.73	.70	.55	.61	.54	.51	.45	.69	.54	.48	.64	-
M: How far do you agree: The mental toughness report has been more useful in identifying personal and professional development opportunities than my PDP.	.58	.65	.65	.56	.67	.65	.47	.65	.54	.64	.63	.52

5. Discussion

5.1 Perceptions of the MTQ48

The aim of this study was to assess how individual teachers and the whole school use the profiles generated by the MQ48 instrument to identify individual and whole school CPD needs. Participants' agreement with their profiles appear to confirm the high face validity reported by Clough and Strycharczyk (2012), where users find the measure applicable and can understand the terms used in the feedback. This was particularly important for this study, where no formal coaching or feedback sessions were given. Arguably, coaching and feedback to the participants could have led to a discussion which may have offered deeper understanding, agreement and expectation of outcomes (Clough, Earle, & Strycharczyk, 2008) (Grant, 2009) (Evers, Brouwers, & Tomic, 2006). However, practicalities of finding time to complete this for all participants rendered this impossible. It may also have presented an ethical dilemma in that the need for coaching of some participants may have continued beyond the duration of this study. Despite the lack of coaching, teaching professionals in the school can relate to the outcome of this measure, which is important as in setting the foundations for development, individuals must be comfortable with the description the measure provides of them (Clough, Strycharczyk, Czwerenko, & Rybak, 2015). Respondents commented on its accuracy and ease of understanding, even expressing surprise with the level of detail and affirmation they gained from their profiles.

By using the measure teachers gained clarification of vague areas of self-understanding and could identify aspects of their teaching and character they felt could be developed. One possible explanation of positive perception of the measure is the detail of feedback it provided, which appeared to offer a useful assessment of individual strengths and weaknesses.

When comparing the instrument to the current PDP self-appraisal form it is apparent that both systems have merit in professional development. The PDP is a self-managed form that allows teachers to observe colleagues and reflect on their professional development. However as the majority found the measure more useful in guiding their reflection, there appears to be a need to add in opportunities to gain greater self-understanding into the professional development system, an idea already suggested by Tickle (1999). When completing self-appraisal forms individuals must rely on their experience, however the MTQ48 may be a better indicator of potential. The report generated by the measure allows reflections on personality and interactions with others which are less bound by teaching experience, offering a deeper understanding of the way an individual approaches tasks and challenging situations. Self-appraisal can seem bureaucratic and may not effectively allow for insight or actions, particularly where there is limited scrutiny. While all psychological measures are fallible, the MTQ48 can present assessments on character and

behaviours not revealed by self-appraisal, which could result in development of resilience and a willingness to accept challenge. The significance of resilience for effective teaching practitioners is clear, improving the quality of teaching and retention rates (Gu & Day, 2007). Relationships between resilience and reflection have been identified (Leroux & Théorêt, 2014). In reflecting properly on the outcome of the measure there is evidence of much potential for personal and professional development, and this theme will be revisited further. For such development to take place quality reflection is needed, however users of the measure must be very honest with themselves to make the most of feedback, a shortcoming which coaching might have addressed. On the other hand, highly reflective practitioners might not require the measure to reach the same conclusions about their character and behaviour. Some expressed difficulty comparing the two, one likely explanation being that the mental toughness measure was not specifically related to teaching roles. It may be that the optimum approach is to use the MTQ48 measure alongside a self-appraisal tool, in this case the PDP, giving feedback and targets which cross over with individual ambitions to produce a holistic and insightful professional development system for teachers.

5.2 Utility in the teaching context

The finding that most individuals find the MTQ48 better in guiding reflection indicates that it has applications in educational settings. However, some perceived the MTQ48 measure to be of limited relevance in teachers' professional development. This is worthy of exploration. Considering the two aspects which make up the term professional development, improving technical skills and social and emotional growth (Villegas-Reimers, 2003) may explain these findings. One suggestion is that these participants may have focussed their responses closely on the relevance of the measure to the technical aspects of classroom practice. It is a point worthy of note that this measure is indeed not specific to teaching and consequently is unlikely to assist teachers in gaining subject knowledge and technical skills for use in the classroom. Another possibility is that the development suggestions given by the measure may have been perceived to be unrealistic in the teaching context and thus difficult to implement and achieve personal growth. Where the measure appears to succeed in contributing to professional development is in fostering social and emotional growth. It was noted by the SLT that in developing these aspects of character teachers will find commitment and motivation, feeling inspired and empowered when talking to other teachers. Participating teachers found a variety of uses for the measure, most notably in reflecting on how they came across which has obvious applications in the teaching profession. Maintaining good relationships with colleagues, managing behaviour and understanding perceptions of personal leadership style are all obvious aspects of the role where this type of self-reflection could lead to improvements in teaching practitioners.

When using mental toughness as a tool to facilitate the professional development of teachers it is especially important that individuals are fully aware of mental toughness as a construct. What should be sought is to reach an optimal level of mental toughness. Low mental toughness is limiting and similarly, teachers whose mental toughness is too high could become uncompromising and poor communicators, which may limit their professional success.

The finding that the measure has provided teachers with a clearer idea of how they respond to the stressors and pressures they face in their role as teachers and leaders is significant as it indicates the importance of the non-cognitive traits in mental toughness to the teaching profession. Such feelings may reflect increased feelings of control, where participants were able to understand the risk of burnout and identify the aspects of their roles which they can control. Another suggestion may be that in understanding individual responses to stress and pressure teachers gained a deeper appreciation for their strengths and weaknesses, which could explain the strong correlation between these two items (.66), although the exact nature of this relationship requires further research.

The debate over whether the measure was useful for identifying strengths and weaknesses as teachers was reflected in the findings. Those that found it useful may have done so from gaining a clearer understanding of what attributes they bring to their teaching role and may even have found affirmation of why they have chosen to a career in teaching. Such information has value as it could promote greater self-understanding in teachers and may even improve retention rates by providing teachers with career affirmations. It is again possible that the non-technical nature of this instrument may have precluded some individuals from identifying their strengths and weaknesses as a teacher and a leader, and may explain why some did not find it useful for this purpose. Another suggestion might be that reflection on profiles may have varied between participants, which could have prevented the outcomes from the measure being made relevant to individual contexts.

When made relevant to individual contexts the profiles become more useful, and the theme of timing of the administration of the test emerged in conversation with SLT. Many staff identified the measure to be useful for a variety of purposes for example: identifying development opportunities, gaining confidence or guiding reflection. The measure has a cost element attached to it and should it be completed too often it could be reduced to a box ticking exercise rather than a meaningful professional development tool. One suggestion of how to integrate the measure into professional development provision may be at certain key points in an individual's career. One such time might be early on, to raise awareness of strengths and weaknesses and to understand how an individual is perceived by others, vital in balancing a teacher's workload and managing behaviour and relationships with colleagues. Another suggestion of a beneficial time to use the measure would

be as part of preparation for middle leadership. Middle leaders are key in improving teaching and learning in schools (Gurr & Drysdale, 2013), however often little is done to promote their leadership capability (Inman, 2009). It therefore is possible as a middle leader to rely on the school leadership hierarchy without solving problems independently (Kirkham, 2005). The measure would enable teachers in these positions to understand how they respond to stressors and pressures in the teaching environment to refine their approach to problem solving. It could also give them confidence to make decisions more autonomously to create a more efficient and productive working environment.

5.3 Mental health

Findings from the item related to teachers' mental health revealed that teachers generally did not perceive improvements to their mental health or wellbeing, despite the established links between mental toughness and mental health (Strycharczyk & Clough, 2015). It could be that participants viewed the development suggestions proposed in their profile as relevant only to their career as a teacher, rather than their emotional wellbeing in and out of the workplace. It is also of note that while teachers were able understand their responses to stressors and pressures more clearly, it is perhaps surprising that this was not associated more strongly with improved mental health. While the initial analysis of the data seems to suggest staff do not perceive mental health benefits from completing the measure, analysis of the correlations with mental health presents a contradictory viewpoint. The correlation found between those who found the measure useful in guiding their reflection and mental health improvements is of interest. While not a causal relationship, this would suggest that by reflecting more comprehensively on the profile and relating it to practice would lead to individuals' perceiving improvements in their mental health. Correlations also exist between mental health and individuals who gained confidence to seek out challenges as a teacher (.79) and those who found development opportunities from their profile (.76). This is further evidence to suggest that those who were able to relate their profile generated by the measure to day-to-day roles were more likely to indicate improvements in their emotional wellbeing. These also correlate strongly with the use of the measure in guiding reflection, suggesting the utility of the measures is strongly related to reflection and this will be explored later in the chapter.

Similar ideas were offered by the SLT when considering the use of the measure to improve mental health of teachers, who believed strongly that the measure would offer improvements to wellbeing and mental health. It may be that in this particular study mental health benefits were not more widely perceived as participants were not allocated time for reflection. Consequently, some teachers may have spent longer than others interrogating their profile, potentially gaining a clearer understanding of their strengths and weaknesses and opportunities for development, which in turn

could lead to improved mental health. Following the work of Strycharczyk (2017), discussed on page 12, it is worth being critical of teachers' self-awareness. Indeed, as many informal conversations take place in the education sector on work-life balance and mental health (Bubb & Earley, 2004), it is conceivable that limited self-understanding may have prevented teachers relating their profiles back to their mental health, despite finding practical development suggestions. The link between stress and mental health would appear to support this (Johnson, et al., 2005), where when responses to stress and pressure are understood an improvement in mental health would be expected. Senior leaders identified that mental health provision was currently a shortcoming of the school's professional development provision and stated the importance they placed on widening professional development provision beyond the Teachers' Standards, especially in mental health. Teachers' mental health is a topical theme (Gholamitooranposhti, 2012; Kovess-Masfety, Rios-Seidel, & Sevilla-Dedieu, 2007) and while further research is needed, there is evidence to suggest that with proper space for reflection mental toughness could offer support in providing broader professional development.

5.4 Reflection

Given the importance of reflection in achieving professional development (Villegas-Reimers, 2003), it appears the MTQ48 is a viable vehicle with which to facilitate development, based on participants' perceptions of its use in guiding their reflection. Within the school, teachers have generally indicated it represents an improvement on the current system for professional development in guiding reflection. This may be due to the measure taking under 10 minutes to complete and providing what was reported by many to be a very accurate assessment of character along with useful development suggestions to consider. The PDP system relies on teachers recalling their experiences and thus can be vulnerable to subjectivity and memory. Although it forms the basis of a conversation with a manager, it is possible for potential development opportunities to be missed. By providing comments and suggestions in profiles the measure gives teachers material to reflect on, which can be considered in individual contexts, presenting the opportunity for more effective self-evaluation.

The issue of providing space for reflection has already been discussed, and time spent reflecting may account for some of the variations in the findings. This becomes apparent when studying the analysis which presents evidence of the established link between reflection and development (Schön, 1987; Clarke & Hollingsworth, 2002). A correlation of .71 exists between individuals who found it useful in guiding reflection and those who identified opportunities for development. While allocating time for reflection may have resulted in more teachers identifying development opportunities it is possible that the measure is more useful for the reflection of those holding certain roles or at particular career stages, which may account for some variation. A correlation also exists

with gaining confidence to seek out challenge (.72), which incidentally correlates strongly with identifying development opportunities (.77). While these relationships are not causal they present an interesting possible mechanism by which professional development can occur through developing mental toughness. It appears that by reflecting, teachers gain confidence to challenge themselves through identifying development opportunities from their MTQ48 profile. The correlations found in these items with mental health seem to suggest that ultimately by finding these development opportunities and confidence, teachers' mental health can improve.

In view of the importance of reflection in professional development it is important to consider how long reflection lasts for and the practicalities of administering the MTQ48 for teachers. As mental toughness is a trait and therefore to some extent fixed, it is important to avoid overuse of the measure to allow time for development to occur as well as protecting school budgets. Using the measure at strategic points in an individual's career has already been discussed, however given the evidence, appropriate consideration must be given to reflection, as seemingly this is more important for development than the timing of administration. While completion of the MTQ48 should be a long-term development strategy, time should be set aside at regular intervals for teachers to have space to reflect on their profile. In providing staff with this time it becomes more likely that the measure will produce practical strategies for teachers to take action (Zeichner & Liston, 2013), giving them motivation and autonomy in their professional development.

5.5 Opportunities for further research

This study has taken the form of a pilot study and has identified several avenues for further research. Only 27 teachers took part, which represents approximately 30% of the teaching staff. To gain a deeper understanding of the utility of mental toughness in teaching, gaining more data from other schools nationally would help to establish whether there is a broad agreement among teachers about its utility and to ascertain whether it is more useful in some schools than others and the potential reasons for this. As teachers in this study identified a variety of uses for the measure it would be beneficial to investigate if the roles the teachers held had any bearing on the perceived utility of the measure. In doing so this could help to inform the most appropriate career stages in teaching to use the MTQ48. The theme of confidence has emerged from this research and analysing if any of the four dimensions of mental toughness is most useful in developing teachers professionally would add to understanding of the uses of mental toughness in teaching.

Mental toughness presents one way of extending professional development in teachers beyond the Teachers' Standards and it would be of interest to assess the impact of mental toughness compared with other strategies. For instance, providing sessions over the course of a year to discuss teaching

specific aspects of mental health has been proven to be of use (Unterbrink, et al., 2010), and has potential for comparison with the MTQ48. In addition, it is likely that coaching would have influenced the findings of this research and it would be interesting to establish the impact of coaching, as the outcome of the measure can be discussed and targets agreed upon. This could be done by establishing a team of teachers who are 'coaching champions' as suggested by Strycharczyk & Clough (2014, p. 93). It would also present the opportunity to ascertain whether teachers found being coached on mental toughness to be a worthwhile use of their time.

When considering approaches to professional development valuable research could be conducted into what are the most motivating forms of professional development. There is clearly a place for self-assessment and metacognitive approaches such as mental toughness in goal setting and recognising mastery experiences (Ross & Bruce, 2007), however teachers may prefer more practical based activities which they may perceive to bear more relevance to their classroom practice (Silberman, 1996).

A final implication from this research could be to explore and conceptualise the links found between reflection, finding development opportunities, confidence and mental health. In addition to enhancing professional development provision within schools, investigating whether any causal links exist within this relationship could be of considerable benefit to teachers' mental health. In understanding the factors in schools which can cause improvements in mental health there is the potential to create more practical steps towards enhanced emotional wellbeing in the teaching profession.

6. Conclusion

As stated from the outset, teachers face several challenges and pressures which contribute to loss of confidence and attrition rates in the profession (Association of Teachers and Lecturers, 2013). From this pilot study, it is apparent that teachers' engaging with mental toughness can present them with opportunities to build confidence to accept challenges. Although mental toughness can be controversial, teachers and senior leaders agree that engaging with it has been beneficial for CPD. The majority found it more useful as a reflective tool than the school's existing reflective professional development programme (PDP). That said, the PDP is still relevant as it focuses on the more specific, technical capabilities needed for the teaching profession when compared with mental toughness, which describes more general aspects of character and behaviour.

The issue of reflection appears to be central to the usefulness of mental toughness in the teaching profession. Based on the evidence presented here it seems those teachers who are able to use mental toughness to guide their reflection on their practice derive more significant benefits from it including identifying development opportunities and gaining confidence to seek out challenges. Such findings further augment the suggestion that mental toughness is useful as a reflective tool in developing teachers, although honesty and self-awareness are needed to maximise its impact. No protected time was given for reflection and it may be that this may account for some variation in the results, as some may have spent longer reflecting than others and may potentially have found it more useful. This is an area worthy of further research.

Despite the fact that mental toughness is not a construct specifically situated in education, potential uses to teachers have been identified in this research which included understanding perceptions of oneself by others, affirming one's career choice and preparation for departmental leadership. This has raised the issue of strategic utility of mental toughness. It may be that there are certain moments in an individual's career where engaging with mental toughness could lead to meaningful development and preparation for the next steps. One example to emerge from this research is in preparing for middle leadership, where mental toughness could increase a teacher's self-understanding, making them a more effective leader by giving confidence to make decisions more autonomously.

Contrary to what was expected, few teachers perceived benefits to their mental health, yet the literature and senior leaders suggested it was one of the key benefits of mental toughness. However, strong links were observed between those who found mental toughness most useful in guiding their reflection and identifying improvements to their emotional wellbeing. Additionally, a possible pathway allowing teachers to develop professionally emerges from the data. Teachers who found

mental toughness useful in guiding their reflection identified development opportunities, built confidence and perceived mental health benefits. It is important to stress these links are not causal but they present an interesting opportunity to enhance understanding of the uses of mental toughness in teaching.

While it appears from this study that mental toughness is useful as a reflective tool for teachers' professional development within this school, further research is needed to add strength to this claim and generalise beyond this single school. There are several directions this could take. Initially, more data is needed from teachers either nationally or worldwide, ensuring participants are allowed time for reflection, whilst understanding the relevance of mental toughness to specific roles in teaching would also add to understanding. Research could also seek to add causal links to some of the correlations found in this study and investigate the four dimensions of mental toughness in more detail. There is also much scope to investigate how teacher learning and development can be broadened beyond the competencies described in the Teachers' Standards to encourage more holistic approaches to professional development.

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Appendix 1

Follow up questionnaire

Are you **MALE/FEMALE**?

How many years have you been in teaching?

0-2, 3-8, 9-14, 15+

Do you feel your profile is an accurate reflection of yourself?

STRONGLY DISAGREE/DISAGREE/NO OPINION/AGREE/STRONGLY AGREE

Was completing the mental toughness test a worthwhile use of your time?

NOT AT ALL/SLIGHTLY/MODERATELY/VERY/DEFINITELY

Do you feel that the outcome and development suggestions from your report will improve your emotional wellbeing and mental health?

NOT AT ALL/SLIGHTLY/MODERATELY/VERY/DEFINITELY

How useful is your profile in guiding you to reflect on your practice?

NOT AT ALL/SLIGHTLY/MODERATELY/VERY/DEFINITELY

How useful do you find your report in identifying your strengths and weaknesses as a teacher and a leader?

NOT AT ALL/SLIGHTLY/MODERATELY/VERY/DEFINITELY

How useful has it been in helping you identifying personal development opportunities?

NOT AT ALL/SLIGHTLY/MODERATELY/VERY/DEFINITELY

How far do you agree: This report has given you a clearer idea of how you respond to the stressors and pressures you face as a teacher and a leader?

STRONGLY DISAGREE/DISAGREE/NO OPINION/AGREE/STRONGLY AGREE

How far do you agree: The report has given you increased confidence to seek out challenges as a teacher?

STRONGLY DISAGREE/DISAGREE/NO OPINION/AGREE/STRONGLY AGREE

How far do you agree: Using mental toughness improves the professional development system at school?

STRONGLY DISAGREE/DISAGREE/NO OPINION/AGREE/STRONGLY AGREE

How does this compare with the PDP form in guiding your reflection on your teaching practice or your professional development?

MUCH BETTER /BETTER/SAME/WORSE/MUCH WORSE.

How likely are you to reflect on the outcome of your report when setting personal or professional goals?

EXTREMELY LIKELY/LIKELY/UNSURE/UNLIKELY/NOT AT ALL LIKELY

Would you recommend the mental toughness test to other teachers?

YES/NO/MAYBE

Do you find this approach using mental toughness more helpful than the PDP?

STRONGLY AGREE/AGREE/SOMEWHAT/DISAGREE/STONGLY DISAGREE

Please explain your answer to the previous question.

To what extent do you agree with this statement: The mental toughness report has been more useful in identifying personal development opportunities than my PDP.

STRONGLY AGREE/AGREE/SOMEWHAT/DISAGREE/STONGLY DISAGREE

Have you identified aspects of your mental toughness profile you would like to develop further?

YES/NO/MAYBE

Which aspects of your role as a teacher and leader did you find your report most relevant to?

What, if anything, did you find most useful about your mental toughness report?

Appendix 2

Informed Consent Form

Participant Information Sheet

Title: The use of mental toughness as a reflective tool for teachers' professional development

You are invited to take part in a research study of the use of mental toughness as a reflective tool for teachers' professional development. Please read this form carefully and ask any questions you may have before agreeing to be in the study.

The study is conducted by Hugh Stephens as part of his MA Education Research project at Durham University.

This research project is supervised by Dr Julie Rattray (julie.rattray@durham.ac.uk) from the School of Education at Durham University.

The purpose of this study is to understand the usefulness of mental toughness in the professional development of teachers

If you agree to be in this study, you will be asked to complete a mental toughness questionnaire and a follow up survey, some participants may be interviewed for no longer than 15 minutes, which would involve the use of recording devices.

Your participation in this study will take approximately 20 minutes.

You are free to decide whether or not to participate. If you decide to participate, you are free to withdraw at any time without any negative consequences for you.

All responses you give or other data collected will be kept confidential. The records of this study will be kept secure and private. The one exception to this is during the follow up survey questions will be asked about your reflections on the mental toughness measure compared with the existing PDP system. These responses will be shared with SLT anonymously, to allow them to comment on how useful mental toughness is in developing staff and whether it was good value. The outcome from your mental toughness test will not be shared with anyone and will be kept entirely confidential. All files containing any information you give are password protected. In any research report that may be published, no information will be included that will make it possible to identify you individually. There will be no way to connect your name to your responses at any time during or after the study.

If you have any questions, requests or concerns regarding this research, please contact me via email at Hugh Stephens, r.h.k.stephens@durham.ac.uk or by telephone at 0118 944 1005. Ext 833.

This study has been reviewed and approved by the School of Education Ethics Sub-Committee at Durham University (date of approval: 05/01/17)



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Durham University is the trading name of the University of Durham

Declaration of Informed Consent

- I agree to participate in this study, the purpose of which is to investigate the usefulness of Mental Toughness in the professional development of teachers.
- I have read the participant information sheet and understand the information provided.
- I have been informed that I may decline to answer any questions or withdraw from the study without penalty of any kind.
- I have been informed that all of my responses will be kept confidential and secure, and that I will not be identified in any report or other publication resulting from this research. The one exception to this is during the follow up survey questions will be asked about your reflections on the mental toughness measure compared with the existing PDP system. These responses will be shared with SLT anonymously, to allow them to comment on how useful mental toughness is in developing staff. The outcome from your mental toughness test will not be shared with anyone and will be kept entirely confidential.
- I have been informed that data collection will involve the use of recording devices.
- I have been informed that the investigator will answer any questions regarding the study and its procedures. Hugh Stephens, School of Education, Durham University can be contacted via email: r.h.k.stephens@durham.ac.uk or telephone: 0118 944 1005. Ext 833.
- I will be provided with a copy of this form for my records.

Any concerns about this study should be addressed to the School of Education Ethics Sub-Committee, Durham University via email to ed.ethics@durham.ac.uk.

Date	Participant Name (please print)	Participant Signature
------	---------------------------------	-----------------------

I certify that I have presented the above information to the participant and secured his or her consent.

06/01/17



Date	Signature of Investigator
------	---------------------------

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Appendix 3

Durham University School of Education Ethics Committee Approval Letter

05/01/17

Rupert Hugh Stephens
r.h.k.stephens@durham.ac.uk

Dear Rupert

The use of mental toughness as a reflective tool for teachers' professional development

I am pleased to inform you that your ethics application for the above research project has been approved by the School of Education Ethics Committee subject to the following :

- Please add the expected duration of follow-up interview to the information sheet for those who volunteer to take part.

May we take this opportunity to wish you good luck with your research.

Yours sincerely,



Dr Nadin Beckmann
School of Education Ethics Committee Chair

Appendix 4

Results from Follow up questionnaire

Respondent Number	What is your gender?	How many years have you been in teaching?	Do you feel your profile is an accurate reflection of yourself?	Was completing the mental toughness test a worthwhile use of your time?	Do you feel the outcome and development suggestions from your report will improve your emotional wellbeing and mental health?	How useful is your profile in guiding you to reflect on your practice?	How useful do you find your report in identifying your strengths and weaknesses as a teacher and a leader?	How useful has it been in helping you identifying personal development opportunities?	How far do you agree: The report given you a clearer idea of how you respond to the stressors and pressures you face as a teacher and a leader?
1	Female	15	Very	Very	Unsure	Very	Very	Very	Agree
2	Female	15	Moderately	Very	Likely	Very	Very	Very	Agree
3	Male	3-8	Very	Moderately	Unlikely	Slightly	Moderately	Slightly	Agree
4	Male	15	Very	Definitely	Likely	Moderately	Very	Very	Agree
5	Male	0-2	Slightly	Moderately	Unlikely	Slightly	Moderately	Slightly	Disagree
6	Male	15	Moderately	Very	Unlikely	Slightly	Slightly	Slightly	No opinion
7	Male	3-8	Very	Very	Unsure	Very	Moderately	Slightly	No opinion
8	Male	0-2	Very	Definitely	Unsure	Moderately	Very	Moderately	Agree
9	Female	3-8	Extremely	Moderately	Unsure	Very	Moderately	Moderately	Agree
10	Male	0-2	Very	Very	Unsure	Moderately	Very	Moderately	Agree
11	Male	3-8	Very	Very	Unlikely	Very	Moderately	Moderately	Agree
12	Male	15	Moderately	Moderately	Not at all	Slightly	Not at all	Slightly	No opinion
13	Male	0-2	Moderately	Slightly	Unsure	Moderately	Slightly	Very	Agree
14	Female	15	Extremely	Definitely	Definitely	Extremely	Extremely	Extremely	Strongly agree
15	Female	3-8	Moderately	Moderately	Unsure	Moderately	Moderately	Moderately	Agree
16	Female	15	Very	Very	Likely	Extremely	Very	Moderately	Strongly agree
17	Female	15	Very	Very	Unsure	Moderately	Moderately	Slightly	Agree
18	Male	9-14	Slightly	Slightly	Not at all	Not at all	Moderately	Not at all	No opinion
19	Female	15	Very	Definitely	Unsure	Very	Extremely	Moderately	Agree
20	Female	15	Very	Very	Definitely	Very	Very	Very	Agree
21	Female	15	Very	Very	Unsure	Moderately	Slightly	Moderately	Disagree
22	Male	15	Very	Very	Unsure	Very	Moderately	Moderately	Agree
23	Female	15	Not at all	Slightly	Not at all	Not at all	Not at all	Not at all	Strongly disagree
24	Male	9-14	Moderately	Moderately	Unlikely	Moderately	Slightly	Slightly	Disagree
25	Male	9-14	Very	Definitely		Very	Extremely	Very	Agree
26	Female	3-8	Extremely	Definitely	Unlikely	Moderately	Moderately	Very	Disagree
27	Female	9-14	Very	Very	Unsure	Moderately	Moderately	Slightly	Disagree

Respondent Number	How far do you agree: The report given you increased confidence to seek out challenges as a teacher	How far do you agree: Using mental toughness improves the professional development system at school	How does this compare with the PDP form in guiding your reflection on your teaching practice or your professional development?	How likely are you to reflect on the outcome of your report when setting personal or professional goals?	Would you recommend the mental toughness test to other teachers?	Do you find this approach using Mental Toughness more helpful than the PDP?	How far do you agree: The mental toughness report has been more useful in identifying personal development opportunities than my PDP.	Have you identified aspects of your mental toughness profile you would like to develop further?
1	Agree	Agree	Much better	Likely	Yes	Agree	Agree	Maybe
2	Agree	No opinion	Better	Unsure	Maybe	Strongly Agree	Neutral	Maybe
3	No opinion	Disagree	Better	Unlikely	Yes	No opinion	Neutral	No
4	Agree	Agree	Better	Unsure	Yes	Agree	Agree	Maybe
5	Disagree	No opinion	Same	Not at all likely	No	No opinion	Disagree	No
6	Disagree	No opinion	Worse	Likely	Maybe	Disagree	Neutral	Maybe
7	Agree	Agree	Better	Unsure	Yes	Agree	Neutral	Yes
8	Agree	Strongly agree	Better	Likely	Yes	No opinion	Neutral	Yes
9	No opinion	No opinion	Same	Likely	Maybe	No opinion	Neutral	Maybe
10	Disagree	Agree	Never done a PDP	Likely	Yes	Never done a PDP	Neutral	Yes
11	No opinion	No opinion	Same	Likely	Yes	No opinion	Disagree	No
12	Strongly disagree	No opinion	Better	Unlikely	No	No opinion	Disagree	No
13	Agree	No opinion	Never done a PDP	Unlikely	Maybe	Never done a PDP	Neutral	Yes
14	Strongly agree	Strongly agree	Much better	Likely	Yes	Agree	Agree	Yes
15	Disagree	No opinion	Better	Unsure	Maybe	Agree	Agree	Maybe
16	No opinion	No opinion	Worse	Unsure	Yes	No opinion	Agree	Maybe
17	No opinion	Agree	Same	Unsure	Yes	No opinion	Neutral	Yes
18	Strongly disagree	Disagree	Worse	Not at all likely	No	Disagree	Disagree	Maybe
19	Agree	Strongly agree	Much better	Likely	Yes	Strongly Agree	Strongly agree	Yes
20	Strongly agree	Strongly agree	Much better	Likely	Yes	Strongly Agree	Agree	Maybe
21	No opinion	Disagree	Better	Unlikely	Yes	Agree	Agree	Maybe
22	Agree	Agree	Better	Likely	Yes	No opinion		Yes
23	Disagree	No opinion	Worse	Not at all likely	Maybe	Disagree	Disagree	Yes
24	Disagree	No opinion	Worse	Not at all likely	Maybe	Disagree	Strongly disagree	No
25	Strongly agree	Strongly agree	Better	Likely	Yes	Agree	Strongly agree	Yes
26	No opinion	Agree	Better	Likely	Yes	No opinion	Agree	Yes
27	Disagree	No opinion	Same	Unsure	Maybe	No opinion	Neutral	Maybe

Do you find this approach using Mental Toughness more helpful than the PDP? Please explain

Respondent number	Response
1	PDP is more your own opinion based on experience rather than potential.
2	I think it provides a much better basis for discussion in place of form filling. It highlights many things you already are aware of, both strengths and weaknesses, but also points for development you may not have been aware of but now it has been brought to light make sense.
3	PDP causes you to reflect more directly on experiences
4	Different areas looked at and tested. Answers more straightforward with the MT questions, but arguably more insightful when taken together.
5	
6	this is a different tool - not specifically related to role as a teacher
7	
8	
9	Not really comparing like for like
10	
11	I find it difficult to compare them
12	
13	
14	It has given me very specific and targeted feedback
15	Helps having clear targets and goals.
16	I think we need to do both as the mental toughness material is good for general things but the PDP is more specific.
17	It didn't provide any great surprises - I think I am fairly self-aware. The PDP can provide more work/subject- specific areas to focus on
18	Though I agree that the mental toughness questionnaire has implications in how we approach children as a result of their scores, I do not believe that the questions are open enough to start a PDP conversation with a mentor or coach.
19	ideally as part of the PDP
20	Better and more accurate advice
21	PDPs seem more like an administrative hurdle one has to jump every so often
22	
23	it was less accurate
24	PDP requires me to reflect upon myself. Mental toughness test asked me to answer questions that I didn't really spend long reflecting upon. The resultant program, although obviously based upon my answers, didn't feel personalised - it felt like it had been drawn from a statement bank and therefore not as deeply insightful as PDP.
25	In some respects - the exception would be the PDP's sharp focus on classroom practice. For personal development, however, it's an extremely useful tool but you need to be very honest with yourself to make the most of the feedback.
26	Both valuable for different reasons
27	

Which aspects of your role as a teacher and leader did you find your report most relevant to?

Respondent number	Response
1	
2	
3	unsure
4	X
5	
6	patience and mental stamina
7	
8	Maintaining good relationships with colleagues, getting the most out of colleagues as a future HOD
9	Classroom management
10	
11	Reflecting on how I may come across
12	
13	Managing targets and workload and the influence of control with stress
14	All areas
15	Having self-considence
16	Reflecting on your own practice.
17	recognition of risk of burn out and need for affirmation
18	Perhaps more mindful of others attributes, strengths and weaknesses.
19	what I bring to the role as a person as well as how I execute my duties. Helpful information regarding leadership i.e negative sides to postive qualities possibly perceived by those looking on which you would not really know about without some extensive self reflection and guidance.
20	Commitment
21	In reference to control: 'Try to accept setbacks, identify factors that can be controlled'.
22	
23	i wasn' it was not relevant because it did not accurately reflect my strengths or weaknesses
24	Meeting deadlines
25	Decision making / why I do the job
26	Pastoral
27	Working with others. Expectations

What, if anything, did you find most useful about your mental toughness report?

Respondent number	Response
1	I found I was a bit surprised by the results and thought that if I was to do it again I would ensure I was in a better more positive frame of mind as I am sure this would have an impact on the results slightly. I found it highlighted some of what I know already to be my weaknesses but made them appear a lot more important to do something about. - for instance to be more assertive in my beliefs when challenged.
2	It was an interesting read but I have not yet incorporated it into my teaching
3	It is a check. How I might view myself and my strengths and weaknesses might not be the case!
4	
5	overall personal self reflection rather than direct relevance to teaching role
6	
7	I thought it was accurate and easy to understand, and gave me good specific ideas about what aspects of my teaching, and character in the school setting, I can improve.
8	Clarifies former assumptions about my responses to teaching
9	
10	Confirming thoughts
11	
12	It gives a quantitative assessment that was roughly in line with my expectations
13	Finding out my strengths and weaknesses
14	
15	It confirmed what I had already suspected!
16	Clarification of some vague areas of self understanding
17	
18	I had an idea before where I thought I would be & although I had anticipated it correctly, I was surprised by some of the detail which seemed very accurate.
19	Emotional Control
20	Suggestions were welcome, but I found some a bit unrealistic i.e. Take time off for recovery.
21	
22	
23	Not the report, but the process of completing the questionnaire - strange I know, but it made me think back to my own research and revisiting your past studies always gives you a boost as you remember to do things that you have let slip.
24	The findings of the report - good and bad - felt like me. Other psychometric-type tools that I've used presented a caricature that was difficult to engage with in terms of personal development.
26	
27	

Appendix 5

Minutes from SLT interview

SLT Interview

- 1) What does the school hope to achieve from having CPD on the school development targets?
 - Two particular reasons, building on the idea of being a lifelong learner
 - Technical skills, filling skills deficits and updating subject knowledge and specification awareness
 - Softer side - commitment and motivation. When teachers talk to each other they will feel empowered and innovative when talking to others.
 - When it is done well it can be inspiring and can serve to build people on to the next stage. The challenge is to find inspiring ways in which to deliver professional development to build yourself, subject knowledge, the profession and pedagogy.
 - Training can often be too instructional with little emphasis on doing things. The best training is active and prepares leaders, taking people outside their comfort zone

- 2) What are the strengths and weaknesses of the PDP?

Strengths

- Self-managed, allowing for reflectivity
- Allows the observation of colleagues to develop skillsets

Weaknesses

- Can be bureaucratic and this is perhaps insufficient scrutiny or guidance when completing
- It can result in repetitive target setting as individuals can be drawn into 'going through the motions'
- It can be too soft, teachers require thick skins and need more truths to genuinely develop
- Little follow up from PDP, which limits its effectiveness at bringing about actions.

- 3) Do you see mental toughness as different to the traditional PDP approach?

- Definitely different, allows teachers to reflect on their character and their interactions with others.
- The highly reflective practitioner may draw the conclusions from the report already without needing to complete the questionnaire.
- It is about personality rather than competencies, which makes the MTQ48 good at getting the heart of how your work.
- It adds to your understanding of your behaviour.

4) How do you think mental toughness compares with the PDP with respect to CPD?

5) Could mental toughness add to the professional development system at school? How?

Yes

1. Mental health – raising teachers' awareness of important issues
2. Leadership – all teachers are in leadership positions and mental toughness can develop problem solving skills.

6) Any other strengths of mental toughness you can identify in CPD?

7) Does mental toughness help to fulfil the school CPD development targets?

- It could, particularly when approaching training middle management
- Allows teachers to reflect on how they solve problems and the way they work
- This could lead to them having the confidence to deal with problems independently without so much reliance on the chain of command.

8) Do you think mental toughness has the potential to improve the mental health of teaching staff?

Yes – if the results are read properly they present an opportunity to understand yourself. Good for both wellbeing as well as mental health.

9) 40 measures cost £400 (at the research price). Normal price £26 each. Do you feel that the measure would provide good value at this price?

- The cost looks reasonable – per unit for all the staff would be similar cost to a training day.
- If the test is not done too often cost wouldn't be an issue, the frequency the test would be undertaken would dictate its feasibility.
- If the test was to be administered time needs to be set aside to have conversations to allow the space for reflection to take place.

10) Do the opinions of our staff justify including mental toughness in our CPD provision?

- Staff responses seem positive when compared with the PDP.
- Perhaps the negative responses were not given time to reflect and complete the research thoroughly.
- Staff may feel they have high self-knowledge but it may be that they do not as a number of informal conversations take place within the school and some teachers ask to discuss their work/life balance and pressure/stress.

11) Is it something the school would consider using in future with all teaching staff?

Yes – although staff need the proper space for reflection

12) How would it be best used? Individual reflection/basis of a conversation with staff/how often would it get used?

- Restructure the PDP to incorporate issues surrounding mental health rather than simply teaching competencies.
- Ensure that there are practical strategies to come from completing the MTQ48.

13) Any observations from the data you would like to discuss?

- Small number of participants opting in is surprising as many colleagues discuss pressure and stress.
- Staff say they have self-awareness but this could be questioned based on these findings
- Prioritisation of professional development by staff is a further issue, where staff may have chosen to do other things instead of participating in the research. A feeling that some staff missed a development opportunity by not participating.

14) Any questions?