Abstract

This study sought to explore the concept of mental toughness (comprising the attributes challenge, commitment, control and confidence) from the perceptions of adolescents, to better understand their views on these attributes and the extent to which each were regarded as important within an educational setting. In total, 54 adolescents (31 female) aged 12-17 participated. Focus group interviews (n = 15, average group size 3-4) were conducted, audio-recorded and transcribed verbatim. Data were analysed using the principles of abbreviated grounded theory. The students' views are discussed with reference to relevant psychological theory and literature and implications for teachers interested in encouraging these positive psychological attributes among adolescents are discussed.

Introduction

Within education, increasing attention is being paid to non-cognitive attributes (e.g., motivation, resilience) among children and adolescents, based on accumulating evidence of their importance as predictors of educational outcomes (see Morrison, Gutman, & Schoon, 2013 for a review) and later life success. Indeed, while cognitive ability reflects what an individual can do, non-cognitive attributes reflect what an individual will do. In a recent review, McGeown, St.Clair-Thompson, and Clough (2015) discussed the concept of mental toughness in education, exploring the extent to which the four attributes associated with this concept (commitment, challenge, control, and confidence) aligned with other attributes often studied within education (e.g., self-efficacy, resilience, motivation, etc). While mental toughness has its roots in sports psychology (e.g. Crust, 2008), they argued that there was significant merit in using this conceptual framework within an educational context. The present study explored adolescents' perceptions of mental toughness, examining what it means to be 'mentally tough' within a school environment, and the implications for teachers supporting adolescents in a school context.

Mental Toughness in Education

To date, the 4 C's model of mental toughness has been the most widely used within an education context and comprises of four characteristics: commitment, challenge, control, and confidence (Clough, Earle, & Sewell, 2002). McGeown et al., (2015) defined commitment as the perseverance and ability to carry out tasks successfully, despite problems or obstacles. Children and adolescents who score high on commitment will therefore set goals or targets and strive to achieve them; indeed they will be determined to complete these goals, despite problems or obstacles they may encounter. Challenge was defined as seeking out opportunities for self-development. Those who score high on challenge will see new situations as opportunities for self-development, rather than as threats, and will be more

likely to actively seek out opportunities to develop. Control referred to being influential in one's own life and was subdivided into life control and emotional control. Children and adolescents with high levels of life control will feel that they have the power to shape their own life and future, while those with high emotion control will be able to manage their emotions (e.g., anxiety, anger) in difficult situations and be able to regulate their emotions to an appropriate level of intensity. Finally, confidence referred to levels of self-assurance and was divided into confidence in abilities and interpersonal confidence. Children and adolescents who are confident in their abilities will feel confident at attempting new or difficult tasks, whereas those with high levels of interpersonal confidence will feel confident in social situations, particularly in new or unfamiliar environments.

Compared to research with adults, research exploring mental toughness with adolescent populations is still in its infancy. Nevertheless, correlates with academic achievement, school attendance, classroom behaviour and peer relationships have been found (St.Clair-Thompson et al., 2014), in addition to more successful educational transitions (St.Clair-Thompson et al., 2016). Furthermore, mental toughness has also been associated with better psychological health in adolescent populations (e.g. Gerber et al., 2013a; 2013b).

McGeown et al., (2015) argued that mental toughness shares conceptual overlap with other attributes identified as important within education, including resilience (e.g., Putwain, Nicholson, Connors, & Woods, 2013), buoyancy (e.g., Martin & Marsh, 2006), perseverance (e.g., Duckworth, Peterson, Matthews, & Kelly, 2007), self-efficacy (e.g., Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011), confidence (e.g., Stankov, Morony, & Lee, 2014) , motivation (e.g., McGeown, Putwain, Geijer Simpson, Boffey, Markham, & Vince, 2014), and the self-regulation of learning (e.g., Zimmerman & Cleary, 2009). Teachers typically have a considerable interest in fostering these positive psychological

attributes, to ensure their students are successful learners and confident individuals, who achieve academically and contribute positively to society.

While the attributes mentioned above are typically studied in isolation, mental toughness provides a framework to allow the parallel study of different non-cognitive attributes, allowing a more comprehensive approach. This study aimed to explore the different attributes inherent within the mental toughness framework, from the perceptions of students.

Method

Participants

In total, 54 adolescents participated (31 girls and 23 boys) from a single Scottish secondary school (~600 pupils). This school is situated within 3 miles of a city centre and takes pupils from the local catchment area; the School's postcode provides a Scottish Index of Multiple Deprivation rank of ~5400 out of 6967 (where 1 = most deprived zone in Scotland, 6976 = least deprived). The Scottish secondary school curriculum has two distinct phases: the broad general phase (S1 – S3) and the senior phase (S4-S6), with senior phase assessments of Nationals, Highers and Advanced Highers (see Scottish Government, 2016 for more information). Pupils from S2 – S6 participated in the study. Characteristics (gender and age) for each of the focus groups are provided in Table 1

---Insert Table 1 about here ---

Following Head teacher and class teacher consent, adolescents were invited to participate. All adolescents were given comprehensive information about the nature of the study and could choose not to participate if they wished, or withdraw at any time. To allow a free and open discussion of the topic, adolescents were brought out in friendship groups or with peers they felt comfortable with (class teachers selected the groups). Semi-structured interviews were conducted in small focus groups (2-6 students in each, average group size 3-

4), resulting in 15 focus groups. Each focus group lasted approximately 30 minutes. Students were aged between 12 – 17 years.

All focus groups were conducted by the same researcher (first author) in the school setting. The practical steps for conducting an interview advocated in Brinkmann and Kvale (2014) were followed: thematising, designing, interviewing, transcribing, analysing, verifying and reporting. The researcher initially established rapport with the students before students were introduced to the concept of mental toughness and each of the attributes associated with this concept (e.g., commitment etc). Participants were asked to consider their relevance to education and schooling and how they might impact on learning, progression, and achievement. The order of attributes was randomised across group interviews. Please contact the corresponding author for a copy of the interview protocol.

Focus group interviews were audio-recorded, with the permission of participants, and transcribed verbatim. Data were analysed using the principles of abbreviated grounded theory (Corbin & Strauss, 2008). Grounded theory is an approach which allow researchers to develop theory; theory is discovered, developed and provisionally verified through data collection. While we drew upon a previous model of mental toughness (see McGeown et al., 2105), our data gathering approach allowed us to discover, develop and verify what 'mental toughness' means to adolescents in an education context. We did not conduct successive rounds of data collection (i.e., used an abbreviated version of grounded theory). Data were initially deconstructed during a stage of open coding (line by line analysis) and successively reconstructed in stages of axial coding (categories were related to subcategories and relationships tested against data) and selective coding (all categories were unified around a core category) (Strauss & Corbin, 1990) using the method of constant comparison. Constant comparison allows the researcher to move back and forth during coding, identifying similarities among, and differences between, emerging categories. This permits any

subcategories to emerge and allows the full complexity and diversity of the data to be recognised.

Findings

Analyses are presented under six headings as they pertain to the various components underpinning mental toughness: Challenge, commitment, emotional control, life control, confidence in abilities, and interpersonal confidence.

Challenge

Challenge is defined as seeking out opportunities for self-development. One distinct theme that initially emerged was domain specificity: the extent to which this characteristic was stable or would differ across subjects. For example, some students suggested that both they and their classmates had a tendency to always choose easy tasks and activities over more challenging ones or vice versa ("…people [students] always stick to the easy options." FG4; "I think I'd always pick the challenge." FG7). Other students, however, suggested that challenge would depend on the specific subject ("I'd pick more challenging things in some subjects than others." FG11).

Domain specificity is important to consider when working with adolescents within an educational setting. Indeed, researchers often take an approach to studying non-cognitive attributes (e.g., motivation) at either a general academic level (e.g., McGeown et al., 2014) or domain specific (e.g., maths, reading) level (e.g., Guay, Chanal, Ratelle, Marsh, Larose, & Boivin, 2010). The latter approach reflects the fact that student's motivation (both level and type) may vary across different academic subjects. In this study it was revealed that students linked likelihood of taking on challenges as relating to their confidence in their abilities (e.g., "I'd pick challenging work in the subjects I feel more confident in." FG6;"If you think you are better in a subject then you think that you can do the harder things." FG9). This also highlights that the attributes within the mental toughness framework are not, in the views of

adolescents, mutually exclusive. Indeed, this is consistent with Boggiano, Main, and Katz (1988), who noted that children who have higher perceptions of their competence or abilities have a greater preference to engage in challenging learning activities in particular. Developing confidence may therefore be a useful technique which teachers could use to support students to undertake more challenging learning activities.

In addition, students highlighted the importance of feeling prepared for challenges and ensuring that challenges were at the appropriate level (e.g., "I'm more likely to take challenging things if the teacher explains it well to me." FG10). This could be important for teachers to consider when encouraging and supporting students to undertake more challenging work - level of ability and preparation seems to be key. Students also reflected on the negative affective responses associated with challenges (e.g., "If I took on a challenging thing I'd worry that I'd get it wrong and then I'd feel bad." FG11), thus further stressing the importance of supporting students by providing sufficient preparation and ensuring challenges are at the appropriate level. Theories of learning-related emotions (e.g., Pekrun, 2006) highlight how the sense of control a student has over a task or activity is critical to the emotions experienced in relation to that task; too low a challenge results in boredom and too high a challenge can result in hopelessness. They also highlight how the fear of failure can prompt low motivation and engagement; a theme expounded in self-worth theory (Covington, 2009).

Indeed, the extent to which students reported they would take on a challenge was linked to their past experiences of success: "I think when you push yourself, challenges that you find hard and you succeed, you think, well I've managed that one and now I can try something else." FG2.

Therefore students may be more receptive to undertaking challenges if they have achieved earlier success doing so. Other students described how challenge was related to

subject enjoyment (e.g., “I like a challenge in the subjects I enjoy.” FG14). These points align with expectancy-value theory (e.g., Wigfield & Eccles, 2000) which proposes that students’ motivation and task choices are strongly influenced by their expectations of success (e.g., based on experiences of past success) and their value of the task (i.e., how interesting, enjoyable and important it is perceived to be).

Finally, students highlighted how their approach to challenge also depended on the perceived instructional qualities of the teacher (e.g., “I’m more likely to take challenging things if the teacher explains it well to me.” FG10) and whether that teacher is liked (e.g., “If you like the teacher then maybe you are going to try harder.” FG10). These contextual factors are seen as important antecedents of task and subject engagement. Teachers who are perceived to be supportive by students, who take the time to develop good interpersonal relationships with students, characterised by trust and warmth, and who use a variety of instructional approaches, have more actively engaged students who make more progress and achieve more (e.g., Dotterer & Lowe, 2011). Overall, these findings suggest that developing confidence and interest/enjoyment in the subject, ensuring sufficient preparation/guidance is provided, that opportunities for past success are available and drawn upon, and that positive relationships are fostered with students, is important for students to take on academic challenges.

Commitment

Commitment refers to the perseverance and ability to carry out tasks successfully, despite problems or obstacles. Students identified commitment as being a particularly important trait for educational success (e.g., “I would say that commitment would be the deciding factor between someone who did well and someone who doesn’t do as well.” FG10). Indeed, commitment aligns closely with the concept of perseverance (determination to master a skill or complete a task) and grit (perseverance for long term goals, particularly in

the face of adversity). Both these short and long term aspects of commitment have been identified as important predictors of academic attainment (Duckworth et al., 2007), as well as rule violation, behaviour in school, satisfaction with school, and the likelihood of dropping out of education (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014; Ivcevic & Brackett, 2014).

Like challenge, some students felt that commitment would vary across academic subjects (e.g., "You put more effort in if you are more enthusiastic and if you like those classes." FG8) while others felt it was a more consistent attribute (e.g., "But if you've got that in you, that you want to do that thing, then you will do it." FG4).

Students noted the importance of having a long term focus for commitment (see first quotation) and believed it was important to set your own goals (see second quotation).

> It depends on what your goal is for after school I guess. Early on in school I didn't really try much because it was the start and I didn't really know what I wanted to do, but then after that you realise that you need all this stuff in school, like the qualifications. FG11.

> It's more important to set goals for yourself. I think if the teacher was constantly giving me goals I would just get a bit fed up and would rebel against it because someone else was telling me to do it. FG4.

The ability to set goals and plan how to achieve a particular learning outcome are key elements of becoming a self-regulated learner (Zimmerman & Cleary, 2009); however students differ in the extent to which they are able to regulate their learning. While the second quotation appears to represent a high self-regulated learner, who would have resented the imposition of goals, other students expressed how they found it difficult to set goals for themselves and preferred their teacher to set goals (e.g., "Teachers ask you what your own targets are, but sometimes you don't know and you need your teacher to tell you." FG10).

Teachers therefore may need to adjust the extent to which they support the regulation of learning to prevent those students falling behind who find it difficult to set their own targets.

In terms of factors which may undermine or influence levels of commitment (i.e., short term completion of work), students noted uncertainty over task instructions (e.g., "Sometimes we are asked to do something but we're not clear on what we have to do, so can't finish it." FG10) and that they did not receive the learning support or scaffolding that was required for task completion (e.g., "I think sometimes the teachers won't describe the work as well as they should and so you're not sure what you are meant to be doing." FG15). Ensuring that students understand task demands clearly and providing the appropriate level of task support are fundamental and routine elements of instructional design and support (e.g., Upadyaya & Salmela-Aro, 2013; Wentzel, 2012). A loss of instructional support leads to lower participation in lessons and cognitive engagement with learning (Dotterer & Lowe, 2011; Lam, Wong, Yang, & Liu, 2012); therefore it is no surprise that students report how such factors undermine their sense of commitment to their studies. Nevertheless, students need to take responsibility for their own learning; they cannot blame others if they had opportunities to clarify their understanding but did not seek to.

Task values have already been highlighted as playing an important role in challenge. However, students also described how their enjoyment of a particular class, task or activity could impact on their sense of commitment (e.g., "You are more committed in those subjects that are made more fun, more active, that you find more interesting." FG13). Task interest and enjoyment in expectancy-value theory are considered to be elements of intrinsic task value and lead to greater task participation (Wigfield & Eccles, 2000). It was also important that lesson tasks and activities were within students' perceived range of competence. When tasks were perceived to be too difficult, students explained how they would be more inclined to make a superficial

effort; an erosion of commitment (e.g., “If the teacher gives you something to do and you know you can’t do it, I think, well I’ll do that much.” FG6). Indeed, it would be those students who had the more general attribute of commitment that would perform well in these situations. Overall, these results suggest the value of helping students to identify a long term goal and to be active in developing their goals (but with support when necessary). For commitment to shorter term goals (e.g., completion of tasks), ensuring tasks are at an appropriate level, and that information is provided clearly, with opportunities for clarification, appears to be important. In addition, enjoyment of tasks also appears to be beneficial to students’ commitment.

Emotional control

Emotional control refers to the ability to manage emotions to an appropriate level of intensity. Students identified a range of emotions experienced at school, including stress (typically in the context of exams), frustration or anger (typically in the context of relationships with teachers and peers), and boredom (typically in the context of lesson tasks and activities). In terms of stress, students described the pressures of taking examinations and preparing for university; these pressures increasing as students neared the end of school.

> The further you get towards the end of school the more you realise I’m going to leave school and this is all I’m going to have and so you think, I’ve got to get this, I’ve got to get that. You put more pressure on yourself to get something, but when you start school you are like relaxed. FG5.

There was variation in the way that students described stress and individual differences in the way that stress was experienced; stress could have a motivating effect on some students, but detrimental effects on others

"I think it differs from person to person… If I'm so worried and stressed about it then I just stop and I can't do any of it. But for other people, it may be like a motivational thing." FG4.

Some students articulated a clear link between stress and the anxieties arising from not meeting academic targets (e.g., "It's more anxiety people get when they start failing tests in class and their teacher tells them that they need to do better, that can cause stress and students can crumble under it." FG5). Previous research focusing on stress in academic settings has revealed that stress is detrimental to academic performance (e.g. Kaplan, Liu, & Kaplan, 2005), school engagement (e.g. Raufelder, Kittler, Braun, Latsch, Wilkinson & Hoferichter, 2014), and is related to intentions to drop out (Eicher, Staerkle, & Clemence, 2014). Consistent with the beliefs of students in the current study, previous research has also revealed that older students report more subjective academic stress, due to the increasing demands of school, including the time spent on homework (Brown, Nobiling, Teufel, & Birch, 2011), and a need to secure future careers and job opportunities (de Anda, Baroni, Boskin, Buchwald, Morgan, Ow et al., 2000; 2000).

In addition to stress, students also described anger, annoyance and frustration towards teachers and peers and boredom over tasks. Students would become angry with teachers over a sense of injustice about the imbalance of power (e.g., "I don't see how they can shout at you and you can't shout at them." FG1), if a student believed that they were reprimanded inappropriately (e.g., "If you are getting told off for something that you've not done." FG14), if teachers did not return work feedback on time (e.g.,"it's so crucial and important that we have the feedback to improve, that we start to get a bit annoyed if we don't get things back on time."FG4) and if a teacher was perceived to not explain a task properly ("there's also the frustration of when the teacher doesn't explain it well." FG14). Students would become angry with their peers and classmates if they were prevented from concentrating on their

work (e.g., classmates were talking) (e.g., “I see people getting annoyed with other people that aren’t doing their work.” FG8); or if classmates were not contributing to group work (e.g., “I feel frustration, cause if you are working in a group and everyone is talking and you’re the only one doing the work.” FG14). Lesson tasks and activities were experienced as boring if the challenge level was not appropriate (e.g., “I get bored if something is too difficult, but if it’s too easy, it can be boring.” FG2), if they were uninteresting (e.g. “you get bored if the thing that you are doing is not really interesting.” FG10), or not valued (e.g., “get bored cause the subject is pointless.” FG12).

These points highlight the multiple sources which may increase the frequency or intensity of negative emotions throughout the school day. There is a considerable body of research exploring the occurrence and type of emotions reported by students in academic contexts (see Pekrun, 2006 for a review) and research has found that feelings of boredom, anger and anxiety associated with exam preparation all correlated inversely with exam performance, while positive emotions correlated positively with exam performance, highlighting the importance of facilitating positive rather than negative emotions (e.g., Putwain, Larkin, & Sander, 2013). Indeed, emotions prime attention; people respond to things faster when they are congruent with their emotion (Olafson & Ferraro, 2001). Therefore reducing negative emotions and fostering positive emotions is important, not only for academic attainment, but potentially for influencing student’s attention within the classroom towards more positive experiences.

Students’ comments also highlighted overlap among the mental toughness attributes. For example, boredom was inversely linked to commitment (e.g., “If people aren’t enjoying the class they are in, they’ll get bored and switch off. They will just go off the task and do their own thing.” FG8). Being able to regulate negative emotions to an appropriate (i.e., helpful) level of intensity may therefore impact on other mental toughness attributes. Indeed,

students recognised that their ability to control their emotions influenced the work they did in class (e.g. “I think it’s better managing your emotions cause I used to just scream at everybody. I just try to put it out of my mind now and get on with my work – I think I’m ok at that.” FG15).

Providing students with techniques and methods to control their own emotions, particularly in difficult or adverse circumstances is crucial; while it is important to foster positive student-teacher relationships, students should be supported to be autonomous in managing their own emotions. The findings from these focus groups highlight a number of negative emotions experienced by students throughout their academic lives and in their day to day classroom experiences. Teachers should be aware of common contexts in which adolescents may be more prone to negative emotions (e.g., exams), but also the day-to-day interactions which may produce strong emotions (e.g., perceived injustices, lack of peer collaboration). There is a need for more educational research exploring ways in which teachers can support students’ emotional control, as most research to date has focused on anxiety in the context of exams (e.g., Ramirez and Beilock, 2011).

Life control

Life control refers to feelings of power that adolescents have to shape their own life and future. Comments from the students highlighted a number of influences on their life, typically other people, including parents: (e.g., “Your parents are the biggest influence because they want you to achieve and study.” FG9), teachers: (e.g., “I think the teachers are the main influence because they are always trying to push you to be the best that you can, well as good as possible.” FG10) and peers: (e.g., “I think friends influence you a lot, if your friends want to do something then you want to do it.” FG13).

Past research has highlighted the importance of parents in particular (Bowers et al., 2011), but also non-parent adults (e.g., teachers) (Bowers et al., 2014; Murray & Greenberg,

2000) and peers (Goldstein, Davis-Ken & Eccles, 2005) in fostering positive psychological attributes. Positive relationships between adolescents and parents are typically characterised by warmth (e.g., nurturing, accepting, supporting), knowledge (i.e., having information about adolescents' behaviour/acquaintances) and school involvement (i.e., taking an active role/interest in their education); all of which have been associated with positive adolescent outcomes (see Bowers et al., 2014). Furthermore, positive relationships with non-parent adults (e.g., teachers) have also been linked to better adolescent outcomes, including educational achievement and higher ratings of social and emotional adjustment (Bowers et al., 2014; Murray & Greenberg, 2000). As with parents, specific characteristics of these relationships (e.g., warmth, acceptance, closeness) have been related to these positive outcomes (Bowers et al., 2012). Finally, better peer relationships have been found to be associated with greater self-esteem and less anxiety and depression (La Greca & Lopez, 1998). Therefore, the important people within adolescents' lives have the opportunity to positively support and shape their development, while still allowing opportunities for adolescents to gain autonomy, a key feature of this developmental period.

Indeed, despite recognising parents, teachers and peers as influences, students recognised that they were becoming increasingly autonomous and could select advice/support as they chose (e.g., "As you get older, you have more control over your life, it's more in your hands now, what you can achieve." FG11). The need for autonomy is captured within several influential theories of motivation, including self-determination theory (Deci & Ryan, 2000). According to this theory, experiencing autonomy, along with competence and relatedness, facilitates learners' motivation and self-regulation. Perceiving parents and teachers as autonomy- supportive therefore promotes persistence (Hardre & Reeve, 2003), engagement (Hafen, Allen, Mikami, Gregory, Hamre, & Pianta, 2012), school behaviour (Soenens, Sierens, Vansteenkiste, Dochy, & Goossens, (2012), and academic attainment (e.g. Guay &

Vallerand, 1997).

Finally, the quotation below highlights how the absence of a long-term career goal may be detrimental to one's sense of control over their life.

> Sometimes I feel I have no control over my future because I actually have no clue what I want to do when I leave school so I'm not really sure what I should be working at just now. Most people know what grades they need to get, but I don't. It's quite unmotivating not actually having an end goal. FG11.

In expectancy-value theory, long-term goals, such as career aspirations, form an important element of utility value (Wigfield & Eccles, 2000), such aspirations can be instrumental in achievement-related choices and performance. Teachers should consider the important role they play in adolescents' development, while also recognising the greater autonomy expected from older adolescents. Ensuring adolescents have positive and achievable long term plans will help them feel they have greater control over their lives, which is likely to impact positively on their decision making and behaviour.

Confidence in Abilities

Confidence in abilities refers to feeling confident at attempting new or difficult tasks. Researchers suggest that confidence in abilities is the strongest non-cognitive predictor of academic achievement (Stankov et al., 2014), particularly during high school (Multon, Brown & Lent, 1991). Indeed, confidence in abilities was indirectly related to academic achievement by students.

> If you are not confident and you think that you are doing to fail, then you might stress out more and put too much pressure on yourself and then fail because of that, rather than because of your actual abilities. FG4.

Confidence in abilities was also linked to classroom behaviours, for example, classroom participation (e.g., "people who are confident in their abilities would be more likely to put

their hand up and ask questions." FG9), increased effort (e.g., "you are more likely to try hard if you feel confident." FG6) and engagement (e.g., if you are in a class that you are confident in, you listen cause you want to do well, but if you don't understand it then you just stop and start mucking around." FG14)

Indeed, research has shown that academic self-efficacy is related to learning and study skills (e.g. Robbins, Lauver, Davis, Langley, & Carlstron, 2004), as well as the use of deep learning strategies (e.g. Ferla, Valcke, & Schuyten, 2008). Therefore, developing confidence in abilities will result in a number of positive behaviours.

Like challenge and commitment, domain specificity was an important characteristic of confidence. Indeed, the study of confidence among students has been studied at both the domain specific (e.g. Stankov et al., 2014) and general academic level (Kleitman & Gibson, 2011). Within this study, students reported that their confidence could vary between school subjects (e.g., "My confidence changes across different subjects. In some subjects, I know I am good at that, or that's one of my strong subjects, but in other subjects I can get confused easily." FG15) or even within a subject (e.g., "I think sometimes your confidence can change in a subject, you can feel confident in some parts of your subject but not other parts cause they might bring something up that you don't like or understand." FG15). In contrast, other students described confidence as being a more consistent attribute that was common across all subjects (e.g., "some students feel confident in all their subjects, some students don't." FG13; "I think there are some students whose confidence would be the same in every class." FG14).

While past research has focused heavily on the relationship between confidence in abilities and academic attainment (e.g., Stankov et al., 2014), the present study highlights that confidence in abilities is also associated with classroom participation, increased effort and engagement. Teachers may wish to consider this wide range of school outcomes when

developing this attribute. Compared to the other attributes under study, there is considerable empirical research examining effective methods to develop this attribute. For example, providing frequent and immediate feedback to students when working on academic tasks (Schunk, 1983) and attributing this feedback to their own effort (Schunk, 1987) has been shown to lead to gains in academic confidence. In addition, students who set proximal goals develop stronger academic confidence than those who set distal goals, as the former allows more opportunities to recognise growing expertise (Bandura & Schunk, 1981). It has also been suggested that confidence may be developed through interventions targeting emotional well-being, pedagogy which promotes the active and voluntary sharing of knowledge, and educational interventions which are designed to improve attainment in specific curricular domains (e.g. see Maclellan, 2014). These approaches may support teachers to develop this attribute among adolescents.

Interpersonal confidence

Interpersonal confidence is regarded as being confident in social situations, but particularly among new or unfamiliar people or in new or unfamiliar situations or environments. This was identified as an important trait for within and out with school:

> "I think being able to socialise is important for life in general. It's good to have social confidence, cause then you will be confident in the workplace and at college." FG4.

Interpersonal confidence was seen to be related to positive classroom behaviours (e.g., "someone who is confident, if they get stuck, they are confident speaking out, but if you are more shy then you might not have the courage to ask someone." FG8). Interestingly, while some students felt there were benefits of having friends on interpersonal confidence (e.g., "If you have a lot of friends then you can be more confident in other situations because you are used to having more people around you." FG14), a significant number felt that having a large

friendship group was different to having high levels of interpersonal confidence, or even, that having a large friendship group could undermine opportunities to develop interpersonal confidence (e.g., "If you have more friends you might be less confident with new people cause you have your friends." FG10; "I think you can have a lot of friends and not be confident meeting new people, meeting new people is different." FG11).

Previous research within both educational and occupational contexts has examined social self-efficacy, referring to individuals' beliefs that they are capable of initiating social contact and developing friendships (Gecas, 1989), as well as performing successfully on tasks requiring social interaction (Connolly, 1989). Social self-efficacy has been found to impact upon academic achievement, career aspirations and career decision making (e.g. Anderson & Betz, 2001; Bandura, Barbarelli, Caprara & Pastorelli, 2001). Among adolescents, interpersonal confidence has also been related to quality of peer relationships (St Clair-Thompson et al., 2014).

In terms of implications for teachers, supporting adolescents to develop interpersonal confidence appears to be important both within the education context (e.g., for effective group work, asking questions to seek clarification in class, presenting) but also after school (e.g., adjusting to new environments/contexts, such as work, higher education). Further empirical research to identify effective ways to do this is necessary.

General discussion

The present study explored students' perceptions of mental toughness attributes, considered their responses in the context of psychological and educational theory, and discussed potential implications for teachers working with adolescents. The mental toughness framework arguably provides an innovative approach to the study and understanding of non-cognitive attributes within education. While the mental toughness attributes align with attributes commonly studied within education (e.g., confidence, motivation, perseverance,

resilience etc., see McGeown et al., 2015), this framework provides teachers and researchers with a new approach which may help to advance knowledge and the quality of support provided to adolescents within education. For example, by understanding the degree of overlap between attributes (e.g., confidence may precede challenge) and the contexts under which some attributes may be particularly important (e.g., emotional control in exam situations), teachers can direct support and resources more efficiently and effectively.

Indeed, the present study provides a number of important insights for teachers working with adolescents. Firstly, and importantly, students commented on a range of environmental features (e.g., supportive teacher, engaging lessons, lack of distractions) which may support the mental toughness attributes; therefore these attributes were not perceived as 'internal', but could be nurtured, given the right environmental supports and experiences. Furthermore, insight into how to foster these positive psychological characteristics were provided, for example, a nurturing and supportive environment, past experiences of success, value and confidence appeared to be important for students to take on challenges.

In addition, the research highlighted individual differences among students; therefore a 'one size fits all' approach is not appropriate. For example, students varied in their perceived ability to set their own goals (see commitment), and responses to stress (see emotional control). Responding to the different needs of students is a challenge for teachers; however mental toughness, by way of its less academic terminology, arguably provides a language that students and teachers can share more readily.

Students also provided information about the benefits of these attributes within education. For example, greater classroom participation, increased effort and greater engagement were seen as arising from feeling confident in your abilities. Indeed, the students' voices within this study do not only inform our understanding of the benefits of

these attributes within education, but could potentially inform interventions to develop these positive psychological characteristics.

The study also raised some important questions regarding domain specificity and the distinctiveness versus overlap of the attributes, which can be discussed in relation to mental toughness theory. With regard domain specificity, it was recognised that the degree of challenge, commitment and confidence in abilities that an individual displays may differ across curriculum domains or academic tasks. This is consistent with previous findings of domain specificity in other non-cognitive constructs, for example motivation (e.g., Guay et al., 2010). However, existing theories of mental toughness (i.e., Clough et al., 2002) would argue that the mental toughness attributes should not be domain specific. For example, being committed only under certain circumstances (e.g., in some academic subjects but not others) is not true commitment; this type of 'selective' commitment will produce variable levels of excellence.

Secondly, the distinctiveness of the non-cognitive attributes was also raised by students. While there is evidence to suggest that these attributes are statistically independent from each other (Perry, Clough, Crust, Earle & Nicholls, 2013), many students discussed their overlap. For example, engaging in challenge was, for some, based upon confidence in their abilities. However, one could argue that something is not challenging unless students are removed from their 'comfort zone' (i.e., the area in which they feel confident). For our adolescent students, a nurturing and supportive environment, past experiences of success, value and confidence appeared to be important for students to take on challenges; this information may be crucial to develop the 'challenge' attribute among adolescents.

The present study was conducted in a single school; this allowed the researcher to establish a very good level of rapport and trust with the students and school staff, leading to a rich source of information to inform this study. Nevertheless, the extent to which similar

findings would be identified within different school environments is unclear. Therefore, while educational implications have been proposed from this research study, further research is needed before concrete recommendations to teaching practice can be made. In addition, future research should explore students perceptions of mental toughness in other education settings (e.g., primary, tertiary) and with adolescents in other environments (e.g., community, sports settings), to understand how these positive psychological attributes are translated. Finally, future quantitative research studies will help us to better understand the strength of the relationship between mental toughness attributes and cognate attributes known to be important in education (e.g., McGeown, St. Clair-Thompson & Putwain, 2016).

Conclusion

Despite having historic roots in sports psychology, the present study highlights considerable value in using the mental toughness framework to understand important non-cognitive attributes in an educational setting. Indeed, the combination of these attributes may help to contribute to our understanding of why and how some adolescents flourish at school while others experience difficulties. These insights from students are important for practitioners to understand how best to encourage these attributes and support students to achieve their best within an educational context.

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Table 1. Focus group information

Focus group number	Number of participants	Gender of participants	Age of participants
1	3	F	15-16
2	3	1M, 2F	16-17
3	2	F	15-16
4	3	F	15-16
5	2	M	15-17
6	4	2M, 2F	13-14
7	4	2M, 2F	13-14
8	4	2M, 2F	14-15
9	5	2M, 3F	14-15
10	4	3F, 1M	15-17
11	3	2M, 1F	15-17
12	4	2M, 2F	13-14
13	5	2M, 3F	13-14
14	4	2M, 2F	12-13
15	4	3M, 1F	12-13