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The 'growth mindset': More than just praising effort?

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27 It was very pleasing to see the recent article by Helen Philpott in the spring
28 2016 edition of Physical Education Matters on the development of a growth
29 mindset in physical education. We would like to continue the exploration of
30 this research area to physical education.

31

32 **Introduction**

33 In recent years there has been much interest from schools in the work of
34 Carol Dweck and the effect of 'mindsets' on student's motivation and
35 behaviour in the classroom. Indeed a number of schools have bought into the
36 idea of developing a 'growth mindset' culture in their school in the hope that
37 this will be the much sought after panacea for learning, motivation and
38 achievement. In this article, we will outline the foundations of the 'growth
39 mindset' and its links to motivation, examine the research evidence in physical
40 education, and identify some of the key considerations for research and
41 practice of these mindsets in physical education.

42

43 **Origins of the 'growth mindset'**

44 The 'growth mindset' is a popularised term that has emerged from an
45 extensive programme of research on students' motivation in the classroom by
46 Dweck and her colleagues (Dweck, 1999). This research identified two self-
47 theories of ability, incremental and entity, which were found to influence the
48 motivational responses of students. These self-theories refer to an individual's
49 view about the stability or malleability of human attributes and behaviours
50 (e.g., intelligence, physical ability, morality etc.). The incremental theory of

51 ability is reflected in the term 'growth mindset'¹ and the view that our attributes
52 and behaviours are malleable, controllable qualities that can be developed,
53 while the entity theory of ability is reflected in the 'fixed mindset' and the view
54 that our attributes and behaviours are fixed, stable quantities.

55 In the classroom, Dweck found that the implicit theory a student held
56 about the nature of their intelligence could help explain why students of a
57 similar ability responded so differently to the same situation and why some
58 students when faced with difficulties and challenges in their learning withdrew
59 their skills and exhibited a helpless response (characterised by avoiding
60 challenges, disliking effort and attributing their difficulties/failures to their
61 ability), while other students continued to use their skills and exhibit a
62 mastery-oriented response (characterised by thriving on a challenge,
63 persisting in the face of difficulty, increased effort and engaging in self-
64 monitoring or self-instruction).

65 Dweck argues that these effects on students' motivation, learning and
66 behaviour are a result of the 'meaning system' established through viewing
67 ability as either malleable or stable. The different views about the nature of
68 ability create different frameworks within which students attempt to
69 understand their world and organise their experiences, thereby acting as a
70 lens through which students view and judge their achievements and
71 disappointments. Consequently, the implicit theory a student adopts affects
72 what they value, how they approach tasks and challenges, and how they
73 respond to the outcomes of tasks. For example, they can affect the goals that
74 students focus on, the attributions that students' make, and the interpretation

¹ For the purpose of this article we will use the terms incremental and entity to be consistent with the research literature in physical education.

75 of their goals, effort and self-esteem. The differences between the two implicit
76 theories and students' motivational responses become most evident when
77 students are facing challenges or setbacks.

78

79 **Characteristics of incremental and entity theorists**

80 Table 1 outlines some of the characteristics that are associated with each
81 implicit theory. We can see that the characteristics of an incremental theorist
82 are overwhelmingly more positive than those of an entity theorist. In addition
83 to affecting the goals that students value and pursue in the lesson, the implicit
84 theories also affect their interpretation of the same goal. For example,
85 incremental theorists may pursue performance goals but in the interest of
86 assessing their current skills to find out what they may need to work on in the
87 future rather than to show how much ability they have in comparison to
88 others. An important aspect to note for incremental theorists is that while
89 these students show persistence in the face of challenges and difficulties,
90 they are not compelled to persist at tasks that are beyond their current skills.
91 Instead they can recognise that their current skill set requires improvement
92 and therefore giving up with the task does not evoke negative feelings such
93 as shame or embarrassment.

94 Important aspects with regards to entity theorists arise from their focus
95 on gaining favourable judgements of their ability and documenting that their
96 fixed amount of ability is adequate in relation to others. Entity theorists can
97 have a very fragile self-esteem that is easily diminished. They may decline to
98 attempt activities and tasks if they are unsure of whether they will succeed,
99 even if they recently successfully completed the same or similar tasks. In

100 conversations with students they may state that they 'are not the sporty type',
101 'I'm just no good at gymnastics', 'I've never been good at catching' or 'I'm just
102 not made to be very co-ordinated'. Finally and importantly for learning, entity
103 theorists may plateau early in their development and achieve less than their
104 full potential.

105

106 **Implicit theories in physical education: The research evidence**

107 There was a surge of research interest in the two self-theories in physical
108 education and sport in the early 2000s. Survey-based research evidenced
109 that students did hold these different views about their sport ability and that
110 they were associated with students' motivation and behaviour in physical
111 education. Students with an incremental theory reported higher levels of
112 enjoyment, self-regulation, and the adoption of mastery goals, and lower
113 levels of amotivation and self-handicapping. While those with an entity theory
114 reported higher levels of self-handicapping, amotivation, and the adoption of
115 performance goals, and less effective self-regulation (Biddle, Wang,
116 Chatzisarantis & Spray, 2003; Ommundsen, 2001).

117 Research has also found that the nature of the activity and the skills
118 and abilities required for success appear to influence which implicit theory is
119 held, with an incremental theory being adopted in games activities and an
120 entity theory in gymnastic activities (Spray & Warburton, 2003). We have also
121 established a causal link between implicit theories, goal preference and ability
122 attributions in physical education through experimental work (Spray, Wang,
123 Biddle, Chatzisarantis & Warburton, 2006). Students in the incremental group
124 were more likely to focus on mastery goals following failure feedback, while

125 those in the entity group were more likely to focus on performance goals both
126 before and after failure feedback. Students in the entity group were also more
127 likely to blame their ability for their failure than those in either the incremental
128 or control groups.

129 Finally, in longitudinal research we have found that over the transition
130 to secondary school and during Key Stage 3, increases in students'
131 incremental and entity theory of ability are associated with increases in their
132 mastery and performance goal adoption respectively (Warburton & Spray,
133 2008, 2009). These findings are important since they indicate a link between
134 changes in students' theories and changes in students' goal adoption and
135 suggests that teachers could have an important role in helping students to
136 adopt an incremental rather than an entity theory of ability.

137 Our 2008 work on the primary to secondary transition suggests that
138 access to specialist physical education teachers with experience of providing
139 feedback to young people regarding their development in the physical domain
140 does appear to be beneficial for the adoption of an incremental implicit theory
141 of ability. Interestingly, we also found that if an entity theory is established
142 prior to the transition, the focus on performance goals is maintained
143 throughout year 7 of secondary school. This suggests that work to intervene
144 on minimising the development of an entity theory of ability needs to occur in
145 primary school as the specialist teachers in secondary school may find it
146 difficult to challenge an entity theory and its associated negative effects if
147 students already tend to hold this view in year 7. The intervention could be
148 through helping and supporting primary schools to access specialist physical
149 education teachers who can provide appropriate messages about the nature

150 of sport ability or offering continuing professional development opportunities to
151 primary teachers to support their delivery of physical education lessons.
152 These interventions are important as we know that an entity theory and its
153 association with performance goals is associated with a range of negative
154 outcomes e.g., low levels of performance and intrinsic motivation, high levels
155 of anxiety and worry.

156

157 **Key considerations for the future**

158 If we consider the research evidence, it is overwhelmingly apparent that we
159 should be encouraging students in physical education to adopt an incremental
160 rather than an entity theory of ability. However, in moving research forward in
161 this area, there are a number of aspects that are unique to the physical
162 education context that we need to consider, particularly with regard to the
163 challenges of minimising the adoption of an entity theory.

164 1. Physical education is underpinned by educational values that promote
165 learning and improvement and the importance of hard work and effort
166 to achieving success, but at the same time, it involves many physical
167 activities which are inherently perceived in a competitive sense due to
168 the way sports are incorporated into our lives and society.

169 2. Much of the discourse surrounding sport ability is linked to the entity
170 theory of ability, that sports performers have a natural talent or ability.
171 Indeed, talent identification programmes can be based on this premise
172 with coaches choosing their athletes from underlying 'stable' traits.

173 3. The nature of sport ability suggests that it is plausible for young people
174 to view some aspects of their ability from an entity perspective and

175 other aspects from an incremental perspective. Is it possible that a
176 ceiling effect exists with regards to our views about sport ability and
177 some students believe they have reached that sooner than others?
178 Once they reach a particular level or proficiency in physical education,
179 do students no longer believe in the malleability of sport ability and
180 adopt an entity theory?

181 4. It is intuitively appealing for young people to feel good about
182 themselves from knowing that something they are successful at is due
183 to something 'special or innate' about them. However, we do not know
184 what long-term effect this will have on individuals' motivation, learning
185 and achievement across life domains. Teachers need to prevent
186 students becoming overwhelmed by entity messages.

187

188 **Practical considerations for teachers**

189 To conclude this article, we offer the following suggestions for teachers to
190 debate in their schools and to perhaps prioritise an action point or two. While
191 acknowledging the challenges PE teachers face on a daily basis, we would
192 like to offer these points in the spirit of enhancing student experience in
193 physical education. Please tell us what works and what does not.

194

195 *Develop your own incremental theory of sport ability.* Teachers' views about
196 the nature of sport ability can affect their teaching practices, the climate they
197 create in lessons, and the expectations they have of students. Teachers who
198 believe in the potential for change in themselves and others are more likely to

199 set high expectations for their students, make learning engaging, and offer
200 extra help and support when necessary.

201

202 *Do not over praise effort when learning and improvement outcomes are*
203 *absent.* A common misconception is that if we simply praise effort students
204 will develop an incremental theory of ability. However, too often students are
205 praised for effort without an accompanying gain in learning. It may make them
206 feel good at the time but in the long term does little to improve their skills and
207 abilities. For low ability students in particular, effort praise should be
208 accompanied by improvement. Effort with little to no improvement is not an
209 appropriate outcome and requires teacher intervention to adjust the task or
210 provide process feedback.

211

212 *Provide different forms of effort feedback for students in the different stages of*
213 *learning.* Skill development in sport and physical education often necessitates
214 students develop an economy of effort in the performance of refined
215 movements. This means that students in the autonomous (latter) phase of
216 learning (Fitts & Posner, 1967) will require effort feedback related to the
217 desire to continue improving and developing their skills in a range of
218 movement situations. Those in the associative (middle) phase would require
219 effort feedback related to continuing to refine their skills and seeking feedback
220 to improve further. While those in the cognitive (early) phase of learning would
221 require effort feedback related to persistence in the face of challenges and
222 difficulties in trying to work out how to perform the skill and continued effort in
223 trial and error learning. Generic effort feedback for all students such as 'keep

224 on trying' would be counterintuitive in the development of an incremental
225 theory across the stages of learning.

226

227 *Avoid using entity phrases.* These include 'you're a quick learner,' 'perhaps
228 cricket isn't one of your strengths, not everyone can be good at it' or 'you're a
229 natural at this'. While these phrases may be well-meant in that they are
230 intended to boost students' self-esteem and efforts to keep trying, they may
231 lead to future motivational problems, especially if a student has tried hard but
232 due to the wrong strategy their effort was unproductive.

233

234 *Promote the value of failure for learning and improvement.* Entity theorists
235 have a tendency to avoid challenges as failure is perceived as an indicator
236 that they are not good enough. An environment in which mistakes and
237 disappointments are seen as a natural part of the learning process and not
238 tied to their own self-worth will enable students to approach challenges more
239 willingly and support their learning and development.

240

241 *Encourage students to reflect on how they learn.* The incremental perspective
242 fosters a love of learning and willingness to take on challenges. Students
243 need to be able to critically analyse the tasks they are completing so that they
244 can approach challenges and solve problems. Students should be considering
245 questions such as, Is this similar to a previous task?, What do I want to
246 achieve?, Am I on the right track?, What can I do differently?, Who can I ask
247 for help?, What worked well?, What could I have done better?, Can I apply
248 this to other situations? Co-operative learning climates can help to encourage

249 this type of questioning and also encourage students to ask for feedback after
250 both success and failure. After all, it is important that students know how to
251 improve after both experiences, so that in particular competent students do
252 not underachieve.

253 *Acknowledge that we all can adopt an entity theory of ability sometimes.*
254 Consider what teaching practices or elements of the activity that is being
255 taught might be the triggers for students to adopt an entity theory of ability. Do
256 not ignore them, instead can these be minimised or blended with incremental
257 messages to create a more balanced implicit theory message? If students
258 currently display an entity theory, it is not a catastrophe, research shows that
259 theories can be moulded by the environment and significant others.

260

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Table 1: Characteristics of Incremental and Entity Theorists (devised from Dweck, 1999)

Characteristics	Incremental	Entity
What is their view of the nature of physical ability?	Malleable, controllable quality that can be cultivated through learning.	Fixed, stable quantity that cannot be improved.
What do they value and how does this affect the goals they adopt in lessons?	Learning, hard work and effort. Tend to adopt goals that focus on self-improvement and mastery of tasks (mastery-approach goals) or not doing worse than they have done before (mastery-avoidance goals).	Outperforming and being better than others. Tend to adopt goals that focus on being the best and doing better than others (performance-approach goals) or not being worse than others (performance-avoidance goals).
What behaviours do they exhibit and what choices do they make in lessons?	Exhibit persistence, prefer challenging tasks, willing to take risks in their learning to develop and improve.	Give up easily, prefer easy, low effort tasks, and are unwilling to take risks in their learning.
How do they view effort?	Effort is the key to self-esteem and achievement.	Effort is something to be avoided since it implies low ability and results in lower self-esteem.
When do they feel good about themselves?	When fully engaging in a task, when using their skills and effort to master a task, or when working hard and stretching their abilities.	When they avoid looking incompetent, they succeed with low effort, they have an easy success, or others' fail at a task they can do.
Is confidence needed to approach challenging tasks and what type?	Not necessarily needed. If it is present it is in relation to their ability to learn and master tasks and skills if they apply their strategies and effort.	Needed. Need to feel confident that they have high ability, that they are better than others or that they are already good at the task.
How do they view mistakes?	As an expected part of the learning process and are a cue to invest more effort and new strategies in order to succeed in the future. Mistakes/failures are attributed to the skills and strategies they employed.	As a measure of their ability and that they are inadequate. Mistakes/failures are attributed to their ability.
How do they view feedback?	Sought out by students and valued for improving skills and future learning.	Want normative, ability-relevant feedback, disengage with learning-relevant feedback.