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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'<sup>1</sup> 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

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<sup>1</sup> 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.

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261 **References**

- 262 Biddle, S. J. H., Wang, C. K. J., Chatzisarantis, N. L. D., & Spray, C. M.  
263 (2003). Motivation for physical activity in young people: entity and  
264 incremental beliefs about athletic ability. *Journal of Sports Sciences*,  
265 21, 973-989. doi:10.1080/02640410310001641377.
- 266 Dweck, C. S. (1999). *Self theories: Their role in motivation, personality, and*  
267 *development*. Philadelphia, PA: Psychology Press.
- 268 Fitts, P. M., & Posner, M. I. (1967). *Human Performance*. Oxford: England:  
269 Brooks and Cole.
- 270 Ommundsen, Y. (2001). Pupils' affective responses in physical education  
271 classes: the association of implicit theories of the nature of ability and  
272 achievement goals. *European Physical Education Review*, 7, 219-242.
- 273 Spray, C. M., Wang, C. K. J., Biddle, S. J. H., Chatzisarantis, N. L. D., &  
274 Warburton, V., E. (2006). An experimental test of self-theories of ability  
275 in youth sport. *Psychology of Sport and Exercise*, 7, 255-267.
- 276 Spray, C. M., & Warburton, V., E. (2003). Ability beliefs, achievement goals  
277 and motivation in physical education classes. In R. Stelter (Ed.), *New*  
278 *approaches to exercise and sport psychology: Theories, methods and*  
279 *applications. Proceedings of the 11th European Congress of Sport*  
280 *Psychology* (pp. 160). Copenhagen, Denmark: FEPSAC.
- 281 Warburton, V., E., & Spray, C. M. (2008). Motivation in physical education  
282 across the primary-secondary school transition. *European Physical*  
283 *Education Review*, 14, 157-178. doi: 10.1177/1356336X08090704
- 284 Warburton, V., E., & Spray, C. M. (2009). Antecedents of approach-avoidance  
285 achievement goal adoption in physical education: A longitudinal  
286 perspective. *Journal of Teaching in Physical Education*, 28, 214-232.  
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Table 1: Characteristics of Incremental and Entity Theorists (devised from Dweck, 1999)

| <b>Characteristics</b>  | <b>Incremental</b>   | <b>Entity</b>  |
|---|--|--|
| <i>What is their view of the nature of physical ability?</i>                        | Malleable, controllable quality that can be cultivated through learning.   | Fixed, stable quantity that cannot be improved.  |
| <i>What do they value and how does this affect the goals they adopt in lessons?</i> | 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). |
| <i>What behaviours do they exhibit and what choices do they make in lessons?</i>    | 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.  |
| <i>How do they view effort?</i>   | 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.   |
| <i>When do they feel good about themselves?</i>                                     | 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.   |
| <i>Is confidence needed to approach challenging tasks and what type?</i>            | 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.  |
| <i>How do they view mistakes?</i>   | 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.   |
| <i>How do they view feedback?</i>   | Sought out by students and valued for improving skills and future learning.  | Want normative, ability-relevant feedback, disengage with learning-relevant feedback.  |