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The ‘growth mindset’: More than just praising effort?

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

Introduction

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

Origins of the ‘growth mindset’

The ‘growth mindset’ is a popularised term that has emerged from an extensive programme of research on students’ motivation in the classroom by Dweck and her colleagues (Dweck, 1999). This research identified two self-theories of ability, incremental and entity, which were found to influence the motivational responses of students. These self-theories refer to an individual’s view about the stability or malleability of human attributes and behaviours (e.g., intelligence, physical ability, morality etc.). The incremental theory of
ability is reflected in the term ‘growth mindset’ and the view that our attributes and behaviours are malleable, controllable qualities that can be developed, while the entity theory of ability is reflected in the ‘fixed mindset’ and the view that our attributes and behaviours are fixed, stable quantities.

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

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

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

**Characteristics of incremental and entity theorists**

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

Important aspects with regards to entity theorists arise from their focus on gaining favourable judgements of their ability and documenting that their fixed amount of ability is adequate in relation to others. Entity theorists can have a very fragile self-esteem that is easily diminished. They may decline to attempt activities and tasks if they are unsure of whether they will succeed, even if they recently successfully completed the same or similar tasks. In
conversations with students they may state that they ‘are not the sporty type’,
‘I’m just no good at gymnastics’, ‘I’ve never been good at catching’ or ‘I’m just
not made to be very co-ordinated’. Finally and importantly for learning, entity
theorists may plateau early in their development and achieve less than their
full potential.

Implicit theories in physical education: The research evidence
There was a surge of research interest in the two self-theories in physical
education and sport in the early 2000s. Survey-based research evidenced
that students did hold these different views about their sport ability and that
they were associated with students’ motivation and behaviour in physical
education. Students with an incremental theory reported higher levels of
enjoyment, self-regulation, and the adoption of mastery goals, and lower
levels of amotivation and self-handicapping. While those with an entity theory
reported higher levels of self-handicapping, amotivation, and the adoption of
performance goals, and less effective self-regulation (Biddle, Wang,

Research has also found that the nature of the activity and the skills
and abilities required for success appear to influence which implicit theory is
held, with an incremental theory being adopted in games activities and an
entity theory in gymnastic activities (Spray & Warburton, 2003). We have also
established a causal link between implicit theories, goal preference and ability
attributions in physical education through experimental work (Spray, Wang,
Biddle, Chatzisarantis & Warburton, 2006). Students in the incremental group
were more likely to focus on mastery goals following failure feedback, while
those in the entity group were more likely to focus on performance goals both before and after failure feedback. Students in the entity group were also more likely to blame their ability for their failure than those in either the incremental or control groups.

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

Our 2008 work on the primary to secondary transition suggests that access to specialist physical education teachers with experience of providing feedback to young people regarding their development in the physical domain does appear to be beneficial for the adoption of an incremental implicit theory of ability. Interestingly, we also found that if an entity theory is established prior to the transition, the focus on performance goals is maintained throughout year 7 of secondary school. This suggests that work to intervene on minimising the development of an entity theory of ability needs to occur in primary school as the specialist teachers in secondary school may find it difficult to challenge an entity theory and its associated negative effects if students already tend to hold this view in year 7. The intervention could be through helping and supporting primary schools to access specialist physical education teachers who can provide appropriate messages about the nature
of sport ability or offering continuing professional development opportunities to
primary teachers to support their delivery of physical education lessons. These interventions are important as we know that an entity theory and its
association with performance goals is associated with a range of negative outcomes e.g., low levels of performance and intrinsic motivation, high levels of anxiety and worry.

Key considerations for the future

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

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

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

3. The nature of sport ability suggests that it is plausible for young people to view some aspects of their ability from an entity perspective and
other aspects from an incremental perspective. Is it possible that a
ceiling effect exists with regards to our views about sport ability and
some students believe they have reached that sooner than others?
Once they reach a particular level or proficiency in physical education,
do students no longer believe in the malleability of sport ability and
adopt an entity theory?

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

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

Develop your own incremental theory of sport ability. Teachers’ views about
the nature of sport ability can affect their teaching practices, the climate they
create in lessons, and the expectations they have of students. Teachers who
believe in the potential for change in themselves and others are more likely to
set high expectations for their students, make learning engaging, and offer extra help and support when necessary.

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

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

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

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

Encourage students to reflect on how they learn. The incremental perspective fosters a love of learning and willingness to take on challenges. Students need to be able to critically analyse the tasks they are completing so that they can approach challenges and solve problems. Students should be considering questions such as, Is this similar to a previous task?, What do I want to achieve?, Am I on the right track?, What can I do differently?, Who can I ask for help?, What worked well?, What could I have done better?, Can I apply this to other situations? Co-operative learning climates can help to encourage
this type of questioning and also encourage students to ask for feedback after both success and failure. After all, it is important that students know how to improve after both experiences, so that in particular competent students do not underachieve.

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


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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Incremental</th>
<th>Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is their view of the nature of physical ability?</td>
<td>Malleable, controllable quality that can be cultivated through learning.</td>
<td>Fixed, stable quantity that cannot be improved.</td>
</tr>
<tr>
<td>What do they value and how does this affect the goals they adopt in lessons?</td>
<td>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).</td>
<td>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).</td>
</tr>
<tr>
<td>What behaviours do they exhibit and what choices do they make in lessons?</td>
<td>Exhibit persistence, prefer challenging tasks, willing to take risks in their learning to develop and improve.</td>
<td>Give up easily, prefer easy, low effort tasks, and are unwilling to take risks in their learning.</td>
</tr>
<tr>
<td>How do they view effort?</td>
<td>Effort is the key to self-esteem and achievement.</td>
<td>Effort is something to be avoided since it implies low ability and results in lower self-esteem.</td>
</tr>
<tr>
<td>When do they feel good about themselves?</td>
<td>When fully engaging in a task, when using their skills and effort to master a task, or when working hard and stretching their abilities.</td>
<td>When they avoid looking incompetent, they succeed with low effort, they have an easy success, or others’ fail at a task they can do.</td>
</tr>
<tr>
<td>Is confidence needed to approach challenging tasks and what type?</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>How do they view mistakes?</td>
<td>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.</td>
<td>As a measure of their ability and that they are inadequate. Mistakes/failures are attributed to their ability.</td>
</tr>
<tr>
<td>How do they view feedback?</td>
<td>Sought out by students and valued for improving skills and future learning.</td>
<td>Want normative, ability-relevant feedback, disengage with learning-relevant feedback.</td>
</tr>
</tbody>
</table>