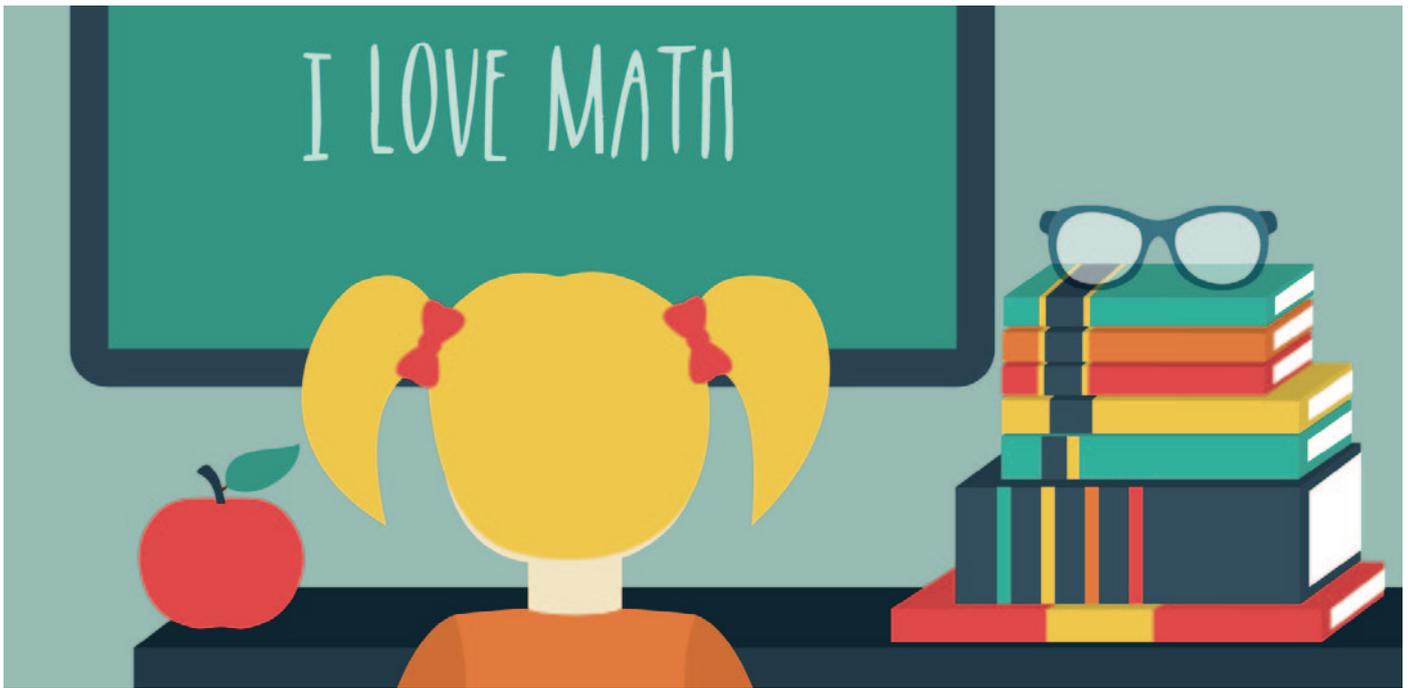

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This is the published version of the following article:

Chan, M. (2018). Enhancing students' motivation in mathematics classroom. *OER*

Knowledge Bites, 6, 11-12. <https://ebook.ntu.edu.sg/20190607-oer-knowledge-bites-volume6/full-view.html>



Enhancing Students' Motivation in Mathematics Classroom

By *Melvin Chan*

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While academic outcomes form the basis of assessment across nearly every aspect of learning and performance, non-academic outcomes are as important for promoting critical thinking and self-regulatory competencies (Lipnevich & Roberts, 2012).

Among the range of key 21st century competencies, education scholars have identified academic motivation as an important enabler of academic success—why students do well and succeed in school. More than just a personality trait, academic motivation is influenced by the social comparison process because students' assessment of their own competence goals reflect not only their individual levels of competence, but also how their competence will be perceived and scrutinised by others.

As students' academic motivation is for the most part modelled and shaped within the environments in which learning takes place (Anderman, Gray, & Chang, 2012; Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008). This suggests that the motivational climate of the classroom has a profound and pervasive influence on student learning.

When educators establish motivation in classrooms, however, they often face a pedagogical conundrum with respect to how students ought to be motivated. Should teachers emphasise the intrinsic rewards of learning, or should students be motivated to outperform their peers in tests and examinations? Would teacher messages about the negative consequences of examination failure motivate or demoralise students?

One of the most active areas of research on academic motivation is the study of achievement goal orientations in which two main classes of goals have been operationalised as mastery (i.e., intrinsic) and performance (i.e., extrinsic). Students who adopt a mastery approach focus on developing competence through

the acquisition of new knowledge and engaging in challenging tasks for the pursuit of deep learning.

On the contrary, students who adopt performance approach goals develop competence by striving to outperform others. Although early research favoured the focus on mastery goal approach, recent literature supports a multiple-goal perspective (e.g., Huang, 2011); both mastery (intrinsic) and performance (extrinsic) goals work in tandem to promote active learning and achievement.

Notwithstanding, important questions remain with respect to the combination of goals that best optimise different educational outcomes.

In a series of recent studies, scholars have expressed concerns about conflicting findings of mastery and performance motivation (e.g., Senko, Hulleman, & Harackiewicz 2008); the former does not always contribute to positive outcomes, while the influence of performance motivation is sometimes positive, sometimes negative. While these findings contribute to deeper understandings

about the theory of motivation, they offer little for solving the practical concerns faced by educators.

Recognising the limitations of the mastery-performance dichotomy, a second dimension of achievement motivation was proposed (Elliot & McGregor, 2001). The authors postulated that competence is developed not only on the basis of the individual and normative standards that individuals evaluate their ability, but the extent to which motivation is adaptive depends also on whether competence is positively or negatively valenced. In other words, motivation can be oriented either by the pursuit of positive outcomes or the avoidance of negative events.

When motivation is positively valenced, students adopt both mastery and performance approach goals. Positively valenced students (i.e., strong endorsement of both mastery and performance approach goals) not only display a deep interest for learning, they are also academically competitive.

On the other hand, students who adopt avoidant goals focus on avoiding feelings of incompetence or failure and are sensitive to negative evaluations by others. While negative appraisals or reinforcements may be seen as an effective strategy to motivate students, for example, emphasising to students the negative consequences of poor performance and how failure would limit future aspirations, a major concern is that avoidant students would intentionally avoid learning situations that elicit negative emotions and evaluations. In addition, avoidant students are also more likely to prefer working on tasks that require minimal mental or physical effort.

Fortunately, research in educational psychology indicates that motivation is for the most part malleable and self-determined (Deci & Ryan, 2000) and it is possible for adaptive learning motivation to be promoted through meaningful motivational interventions.

For instance, teachers ought to challenge (not threaten) students to better their performance (Putwain, Symes, & Wilkinson, 2017): “You can attain this grade if you...” or “You can do well if you...”. Examples of threat messages include, “You will fail if you don’t...”, “You should be very worried if you...”, or “You won’t get a good job if you...”. If performance motivations work, employ them selectively to individual students, but not to the whole class.

Finally, Hulleman and Barron (2015) offered a range of time-tested contextually appropriate interventions that could serve as a useful guide for educators: expectancy value and control beliefs (e.g., emphasise connections to real-world applications; the “what” and “how”; focus on effort, achievable goals); utility and interest value (emphasise importance of and completing class work, of getting good results; the “why”; provide encouraging feedback, use relevant materials); and goal-setting and psychological well-being (encourage and teach students to set and revise goals, be mindful of anxiety triggers due to fear of failing, failure to cope and group work where students compete and compare rather than cooperate).

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How to Cite

Chan, M. (2018). Enhancing students’ motivation in mathematics classroom. *OER Knowledge Bites Volume 6* (pp. 11–12). Singapore: National Institute of Education.