How can targeted strategies for developing a growth mindset, best support the personal and academic growth of Year 12 Economics extension students at Westlake Boys High School?

Westlake Boys High School
Te Kura Tuarua o Ngā Taitamatāne o Ururoto

The Westlake Boys Centre for Excellence in Teaching and Learning

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INTRODUCTION

It was comments from my students that triggered my desire to delve into action research this year. I was teaching a wonderful class of extension Economics students at Year 12, who I overheard putting themselves down in comparison to their peers. Comments such as "but I am not as smart as …" "I don't even know if I should be in this class" "oh, I am so dumb", made me question why these thoughts were occurring in students who have proved their academic ability to be in an extension class. Sometimes these comments were expressed to me directly, sometimes they were said to themselves, and I was privy to overhearing them. I knew I couldn't change my students' thoughts, but I knew I could have some influence to at least make them reframe their beliefs. To support this shift, I identified the need to embed explicit growth-mindset strategies into my practice, encouraging students to view their abilities as developable rather than fixed.

LITERATURE REVIEW

Researchers classify mindset as a spectrum between a fixed mindset and a growth mindset. Learners with a fixed mindset believe individuals have innate abilities that are unchangeable. They tend to avoid failure because it shows a lack of ability (Dweck, 2006). On the other end of the spectrum, learners with a growth mindset believe ability is malleable and can be developed with effort. As with most concepts that exist on a spectrum, people typically have a mixture of both fixed and growth mindsets, and their tendency towards one side or the other can change depending on the day or the activity.

Related to the framing of failure, based on neural activity studies, those with a stronger growth mindset focus more on the corrective information from mistakes, compared to those with a stronger fixed mindset, who focus on the failure (Mangels et al., 2006; Moser et al., 2011). Thus, those experiencing failure with a growth mindset see themselves as on the 'right path' while those experiencing failure with a fixed mindset see themselves as failing to achieve a goal, which may suppress dopamine (Lembke, 2021). For this reason, our mindset may affect our dopamine system and, thus, our motivation towards long-term goals.

In an article by Maggie Dent, she noted that dopamine is a key neurochemical that helps with feeling good and being engaged, and it is essential in our classrooms for learning. Also, that the plasticity of the adolescent brain shows that when students did something hard in school and stuck to it, their brains formed new or stronger connections, thus they continue to receive dopamine cues from these actions.

While failure can beneficially trigger neuroplasticity, humans have also evolved to avoid it. Thus, failure can also reduce motivation. How failure affects motivation partly depends on how we psychologically frame it (Edmondson, 2011). When we frame our failures as being on the right track, we tend to persist; when we frame them as setbacks, we tend to quit (Deichmann & Ende, 2014; Eskreis-Winkler & Fishbach, 2019; Tawfik et al., 2015).

Framing difficult things, like hard projects or challenging puzzles, as *valuable* to you allows you to receive dopamine from them (Lieberman & Long, 2018; Looby et al., 2022; Sapolsky, 2004). Connecting dopamine to difficult things takes time, which helps explain why habits take at least 18 days to form (Lally et al., 2009).

Dopamine tends to be more activate-able in the morning after being suppressed overnight (Mendoza & Challet, 2014). This final point was of note, as it meant that I planned my action to occur in the first two periods of the school day, as opposed to the last.

RESEARCH QUESTION

How can targeted strategies for developing a growth mindset, best support the personal and academic growth of Year 12 Economics extension students at Westlake Boys High School?

RESEARCH METHODOLOGY

The research on mindset spectrum and dopamine led me to share information with my students about how to leverage their dopamine system more holistically for motivation. This was intended to be useful to support my students in realising that feedback while learning, can reinforce the idea that failure is an *expected* part of learning and does not detract from ultimate success in the long term. I did this over two lessons, firstly through some direct instruction illustrating mindset theory from my literature review and the theory of neuroplasticity and how the brain works, particularly the teenage brain. The second lesson incorporated narratives from past and present Westlake students on learning from failure and how they have used positive mindsets to overcome failures. It would be useful to identify at this stage that the definition of failure for many of these students was coming second or third place or gaining Merit grades as opposed to Excellence grades. It was not (in the most part) a spectacular failure at a high stakes assessment or sporting event, hence I reflected on my decision to leave the interpretation of 'failure' intentionally open when inviting student contributions, and I am pleased with this approach, as it elicited narratives spanning personal, sporting, and academic experiences, thereby enriching the breadth of the data.

Examples of Students Narratives in Overcoming 'Failure':

"There may be times when, even if you have put a significant amount of effort towards a goal, you may fall short. You shouldn't become over-fixated on it and beat yourself up for it. Something like this is a part of the process, and though it may feel gutting, learning to persevere when you are feeling low will help you succeed later on."	"Feeling upset at the result that you obtained is probably the first step towards improvement. Knowing that what you have done is not necessarily your best, will internally drive you to take steps to do better the next time around."
"Your failures should become your stepstone to higher success and they will, if you embrace failures and learn from them."	"Some advice I have received throughout my sporting journey is that you either win, or you learn. The only time you lose, is when you don't learn from previous results."
"Feeling upset at the result that you obtained is probably the first step towards improvement. Knowing that what you have done is not necessarily your best, will internally drive you to take steps to do better the next time around."	"This failure became my motivation in Year 12, and I was determined to do better. Whenever I was tempted to be distracted, I would remember the dissatisfaction and regret from Year 11, and I would push myself to higher standards."

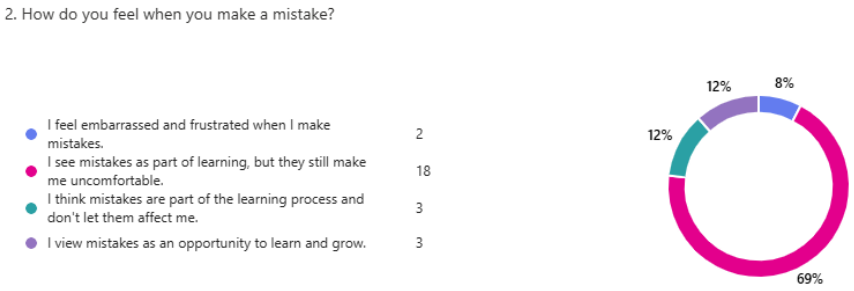
All of these examples included an element of resilience and an orientation of looking forward with motivation i.e. a growth mindset. This was without being informed of the context of my action.

I also carried out two questionnaires with my students, prior to my action and after my action, the second questionnaire also came after the students only Economics Internal Assessment, but prior to receiving any results for this. The questionnaires were designed to generate both quantitative and qualitative data giving varied methodology. I introduced what my action research question was to the class and my intentions for the process before allocating time at the beginning of a lesson for students to complete this. I encouraged them to do so thoughtfully and honestly and for it to be as personal as possible. 26 students were present on the day of the questionnaire. I do wish I had completed a further survey at the end to determine whether students felt that the action had helped them redefine their beliefs as I am basing my conclusions on observations and diary notes that I made in my planner.

In conclusion of the action, I asked my students to write a 'Growth Mindset' comment to themselves somewhere private, some did this in the back of their exercise books, some typed a message to themselves. I gave examples such as "mistakes are proof I am trying", "I can do hard things". The idea was that this would be a mantra that they could come back to repeatedly when they faced disappointment to help them frame their mindset in a positive light. I also shared my Action Research PowerPoint notes which included the student anecdotes, on Teams for reference.

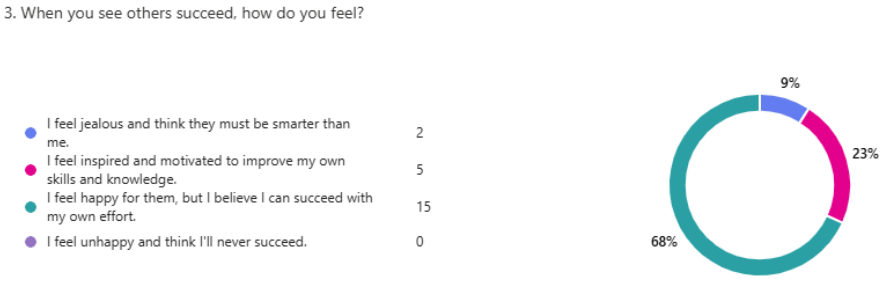
DATA ANALYSIS & FINDINGS

The majority of students (69%) in this class feel 'uncomfortable' when they make mistakes, as opposed to viewing them as an opportunity to learn and grow or not letting them impact them. This is natural for teens who are forming their identity and sense of self-worth. These negative experiences, including mistakes, can be hard to handle and lead to low self-esteem, negative self-talk, and fear of failure. However, students' willingness to report these feelings, suggests a constructive level of trust and openness within our classroom environment. This is particularly significant given the tendency, observed especially among male students, to conceal vulnerability by minimising the importance of academic setbacks, a behaviour consistent with Michael Reichert's observation that boys prefer to appear as though they have not tried rather than risk being seen to try and fail.

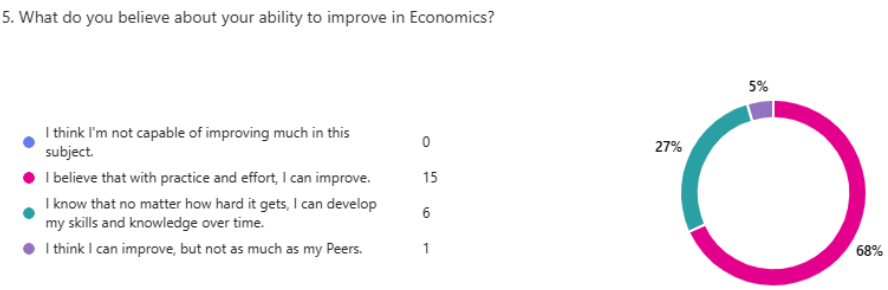


When questioned how students felt when they do *not* get the results they expected, the most common adjective described was "disappointed" followed by "frustrated". The expression of these dispirited feelings demonstrates to me that my students are emotionally engaged and care about their academic results. 100% of students noted that these feelings made them more motivated for the future, or were indicators to prepare better, put more effort in, or try new methods of studying in the future so as not to make similar mistakes going forward. Only two students commented that they may feel de-motivated moving forward by lower-than-expected results; however, this also highlights an important opportunity to help students view mistakes as a normal and constructive part of the learning journey, and to support them in reframing their mindsets towards growth and resilience rather than indicators of fixed ability.

This question tested my assumptions about initial qualitative comments that I had observed and mentioned previously, where students had compared their intelligence to others. The results demonstrated that no one felt like they would not succeed and very few (9%) felt jealousy towards others success.



100% of students believed that they had the ability to improve in Economics. The term 'improve' was deliberately left open-ended so it could be interpreted as 'skills', 'knowledge', 'effort', 'homework' etc. Only one student still compared himself to his peers, which I suspect is the same student who made the anecdotal comparison about his intelligence.



I asked two questions, one quantitative and one qualitative, about perseverance across subjects and factors influencing students' commitment to learning. This was intended to identify strategies I could implement to further support and enhance perseverance within my own subject.

Students' reflections indicated two primary factors influencing their perseverance across subjects: perceived relevance and enjoyment. Many students reported a stronger commitment to all of their subjects when these aligned with their chosen pathways or future career aspirations. Having increased autonomy in subject selection appeared to enhance their willingness to persevere, as students viewed their chosen courses as meaningful and equally important. Conversely, when subjects were perceived as lacking relevance to future goals, students described reduced motivation and effort.

"I am definitely committed to persevering across all of my subjects, I think that is because I was able to pick my subjects this year",
"My commitment is all the same as the subjects I have chosen relate to my possible future careers so I know I need to try in all"
"Due to the fact that this year I was able to choose all of my subjects with very little limitations, I feel that I try as much on every subject as I feel that they are all as equally important to me"
"If I don't feel that the subject is necessary and I won't be benefitting from it in the near future. This will decrease my motivation to persevere with that subject"
"Some subjects that I feel are more important in the future are typically subjects that I tend to try harder in"

A second prominent theme was the role of enjoyment. Students consistently noted that they applied greater effort in subjects they found engaging or intrinsically satisfying, with enjoyment acting as an additional source of motivation. Related to this, some students reported that the quality of their relationships with teachers influenced their perseverance. They tended to work harder in classes where they felt supported or believed that teachers were invested in their learning, whereas limited teacher engagement was associated with diminished effort. Collectively, these themes highlight the importance of relevance, enjoyment, and positive teacher-student relationships in shaping students' academic perseverance.

"I feel I persevere more in the subjects that I enjoy more because my enjoyment works as extra motivation"
"Often the subjects I try the hardest in have been the ones I find most enjoyable"
"Some subjects may make me want to try harder as I enjoy them more"
"I really base my effort in classes over how much I like the teacher and how much I believe I need to work to achieve the grades in those classes",
"My teacher doesn't really put in as much effort in as others do, so I don't feel like I should give them that effort back".

Following my action, I recorded multiple instances of students verbally referencing the concept of a growth mindset in relation to their peers' actions and remarks. Several examples of student-to-student interactions included comments such as: "Was that a fixed mindset you just showed there?", "I think you could have more of a growth mindset," and "I'm determined to get this right myself." Students also addressed me directly with statements reflecting perseverance and a desire for constructive feedback, including: "I am going to keep trying until I get this," "Miss, I am not going to give up," "Can I have feedback on … because I really want to improve?" and "Can you tell me exactly what I have done wrong here so that I can do better next time?" These observations suggest that students were not only familiar with the terminology of growth versus fixed mindsets but were also actively applying it to self-reflection and peer interactions, demonstrating an emerging metacognitive awareness of their learning processes.

Collectively, these findings illustrate a group of students who are emotionally engaged, motivated to improve, and influenced by both affective and relational factors. While discomfort with mistakes remains prevalent amongst the students, it is accompanied by resilience and a forward-looking orientation towards growth. These insights highlight the importance of fostering supportive teacher-student relationships, reinforcing growth mindsets, and creating classroom environments where mistakes are normalised as integral to learning.

CONCLUSIONS

This action research project demonstrated that while high-achieving teenage boys often experience discomfort when they encounter mistakes or fall short of personal expectations, these moments also act as powerful catalysts for future effort and motivation. My students' reflections revealed a cohort that is deeply invested in academic success, sensitive to personal performance, and responsive to the emotional and relational cues embedded in the classroom environment. Their reactions to setback, most frequently described as 'disappointment', were consistently linked to a desire to improve, signalling a strong internal drive that can be further built upon through intentional mindset practice.

Importantly, the findings from my questionnaires highlighted that mindsets among these learners are adaptable rather than fixed. Students overwhelmingly believed in their capacity to improve, and their motivation was shaped not only by subject difficulty or assessment outcomes, but also by perceived relevance, enjoyment, and their relationship with teachers. These insights underscore the value of explicitly teaching mindset theory as well as the science of neuroplasticity, as doing so empowers students to reframe mistakes as productive rather than threatening. Additionally, the students' receptiveness to peer and alumni narratives

suggests that relatable role models play a meaningful role in normalising setbacks and modelling a growth mindset.

For Teachers working with teenage boys, several recommendations emerge from this action. First, embed explicit instruction on how the brain learns, particularly the role of challenge, dopamine, and incremental growth, to demystify difficulty and reduce the stigma of error. Second, cultivate relational trust: boys are more willing to invest effort when they feel their Teachers are equally invested in them. Third, normalise mistakes by incorporating low-stakes opportunities for productive failure and reflective thinking, reinforcing the message that setbacks are data, not verdicts. Fourth, provide narratives of perseverance from peers and near-peers to make growth mindset principles feel authentic and attainable. Finally, strengthen perceived relevance by helping students draw connections between their subjects, personal interests, and future pathways, enhancing their intrinsic motivation to persist. These represent a series of ongoing interactions rather than an isolated action, occurring continuously throughout the school year.

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APPENDICES

Link to PowerPoint:

Mindset AR - Action.pptx

Link to Questionnaires:

12 Economics Extension 2025 Growth Mindset Questionnaire

12 Economics Extension 2025 Mindset After Internal Submission