

# Student Responses to a Tough Early Assessment: A Useful “Kick up the Bum”?

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## Abstract

First year is a delicate time for students. Many have little idea what to expect of university, and their sense of identity as tertiary students is fragile. A diagnostic assessment early in first semester may reassure students that they have chosen the right path. However, some academics, particularly in engineering, argue that this early assessment should be very demanding – so tough, in fact, that some students fail - in order to alert students to the hard work required to pass the course. This study uses a mixed methods design (weekly surveys and in-depth interviews) to explore the effects of a purposefully tough early assessment on first year engineering students at an Australian university. We find that, across the cohort, the high failure rate was not associated with a significant slump or spike in motivation. Although some students were initially dismayed by their results, most went on to address their study with resilience, and appreciated the “kick up the bum”, as they described it.

**Keywords:** Assessment; failure; resilience; ADFA; first year.

## Introduction

Many first year university students have little idea what to expect as they make the transition into university. While popular culture may lead them to believe that university offers a party life, first year experience surveys often show that novice students find studying at university is much harder than they anticipated (O’Shea, May, Stone & Delahunty, 2015). They may doubt whether they have chosen the right course, and whether they can cope with university studies. Many have not yet developed a strong sense of identity as students, and at least 19% of Australian university students consider deferring or withdrawing in their first year (Baik, Naylor & Arkoudis, 2015).

Studies of the first year experience show that students’ sense of academic identity is often affirmed when they receive the results of their first assignment (Gill, 2015; Lizzio & Wilson, 2013; Tinto, 1993). A reasonable result in an early assignment can help to build students’ understanding of course requirements (Boud & Associates, 2010; Hortsmanshof & Brownie, 2013) and build their confidence (Thomas et al., 2019). The first year experience literature strongly advocates a low-risk, early diagnostic assessment so that students who are at risk can be identified and offered extra support (Kift, 2009; Nicol, 2009; Thomas, 2018). Such early assessment, *assessment for transition*, also helps to actively engage students and ‘kick-start their activity’ (Taylor, 2008). As Nicol (2009) argues, an early formative assessment piece, with a relatively small percentage of the final grade allotted to it, can help to ensure that students do not find themselves failing at the end of the semester.



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However, some lecturers in our institution, the UNSW in Canberra, Australia have a somewhat different attitude to early formative assessment. They agree that early assessment allows students a chance to align themselves with the discipline, but rather than an easy early task, this first assessment is the time to expose students to a tough assignment or test; an extreme version of ‘kick-starting’ their activity. They work on the premise that a high proportion of the cohort will receive a fail grade or a low pass on this task. They see this as a short, sharp shock to ensure that first-year students do not become complacent in the new, less structured learning context of university, and that they realise the high standards and hard work expected of them. Engineering lecturers, in particular, espouse this ‘tough love’ approach. Engineering prides itself on being an elite and difficult course, demanding rigorous standards and long hours of study in and out of class. Such lecturers argue that students need to get a strong message early in their first semester to underscore the importance of a dedicated, consistent, independent and engaged approach to their study. In particular, they want students to realise early in the course that university-level physics and engineering require a far greater degree of critical thinking, mathematical rigour and more sophisticated problem solving than was the case at high school. Hence, they believe that an easy early task designed to build confidence, which produces a grade distribution skewed towards higher grades than the final course grades will be, would create unrealistic expectations and encourage over-confidence. Failure to understand teachers’ expectations has been identified as a key factor in first year attrition (Willcoxson, 2010), and hence easy early assessment tasks which do not make expectations clear may not be in the best interests of students. However, especially in elite universities that demand high university entrance scores, most first-year students have been used to achieving high grades at school, and the shock of receiving a fail grade (or near fail) could be demoralising (Thomas, 2018).

This paper interrogates the assumption that an experience of failure, or near-failure, early in first year can contribute positively to students’ commitment to study. We explore whether a tough early assessment item with a relatively high fail rate helps or hinders students’ motivation and resilience. While the study was undertaken at a university primarily providing tertiary education to defence personnel, the implications for civilian universities are also considered and discussed.

## Literature Review

Assessment has a key role in learning and lecturers are acutely aware that assessment is what drives learning: students focus their effort almost entirely on what they know will be assessed (Boud & Molloy, 2013). For this reason, Biggs (1999), Rust (2007), Gill (2015) and others stress that assessment should be constructively aligned with the curriculum and with its long-term goals, so that the nexus between assessment, learning and the curriculum is as tight and effective as possible. In other words, assessment is construed as assessment *for* learning rather than assessment *of* learning (Boud & Molloy, 2013; Gill, 2015).

Importantly, the first year experience literature stresses the need for early formative assessment (Boud & Associates, 2010; Kift, 2009; Nicol, 2009), and the value of this as part of the transition process (Taylor, 2008). As Boud & Associates (2010) emphasise, assessment practices should be “carefully structured in early stages of the course to ensure that students make a successful transition to university study” (p.2). This concept underpins practices such as dividing assessment into three phases, with the first being *assessment for transition*, followed by *assessment for development* and finally *assessment for achievement* (Taylor, 2008). The first phase, which includes early diagnostic assessment, gives students insight into the standards set in the course, the prior knowledge expected, and what they must do to succeed (Nicol, 2009; van Schalkwyk, 2010). Early assessment may improve pass rates and enhance retention into second semester and enable universities to identify students who need extra support (van Schalkwyk, 2010). If, however, students experience failure in this assessment, they could be demoralised. Early in their course, a student’s identity is fragile (Whannell & Whannell, 2015) and their self-efficacy or academic confidence may be impaired if their first experience of assessment at university is a fail grade (Poulos & Mahony, 2008). As Tinto (2015) explains, “self-efficacy is the foundation upon which student persistence is built. Students have to believe they can succeed in college. Otherwise, there is little reason to continue to invest in efforts to do so” (p.4). Students who have experienced failure may be inclined to disassociate themselves from the discipline and it may negatively affect the way they construct their identity as learners (Evans, 2013). An experience of failure can be particularly damaging for students who are already low in self-esteem or are “less content” with their university experience (Young, 2000). Svensson (2015) found that those who were ‘less content’ experienced more stress and were more likely to express fear of failure, while those who were ‘more content’ viewed failure as a challenge to perform better on a subsequent task.

A useful framework for understanding students' responses to an early tough assessment comes from Bandura's (1989) seminal work on motivation. Bandura argued that people's reaction to failure depends on their sense of agency. Those who have a belief in their self-efficacy exert continued effort despite setbacks. Recent research has shown that if students believe that their failure is repairable by working harder, they may adopt an 'approach orientation', reproaching themselves for their failure, but making an effort to improve their future performance; however, if they believe that their setback is irreparable, for example because they lack the requisite ability or intelligence and hence is beyond their control, students may adopt an 'avoidance orientation' (Leach & Cidam, 2015; Manalo & Kapur, 2018; Stewart et al 2011). Thus, if students see a solution that is within their control, they may be able to overcome the stress of failure and persist (Bhanji, Kim & Delgado, 2016).

## **The Context**

### ***The Students***

The cohort of students participating in this study was made up of the 2016, 2017 and 2018 first year Bachelor of Engineering (BE) aeronautical, civil and mechanical students, the Bachelor of Technology (B Tech) aviation and aerospace students, and the 2017 and 2018 BE electrical engineering students at UNSW Canberra. This comprised 84 students in 2016, 139 in 2017 and 126 in 2018, making a total of 349 participants. The total enrolment in these degrees was higher by about 10%, but not all students participated in the study.

The entrance requirements for engineering at UNSW Canberra are high, requiring an Australian Tertiary Admissions Rank<sup>1</sup> (ATAR) of 85 (85<sup>th</sup> percentile) or above for a BE and 80 or above for a B Tech. This is comparable to the requirements for entrance into engineering degrees at other Australian research-intensive universities.

Eighty percent of the students in the cohort were trainee officers in the Australian Defence Force (ADF), aged between 18 and 20. As in most engineering degrees, the majority of the cohort was male, and the cohort of 349 students included only 61 women. The cohort also included 40 civilians (typically school leavers) and 66 mature-age students, most of whom were serving officers.

The trainee officers are paid a salary and the ADF expects students to complete their degrees in the minimum time (four years for an engineering degree). Students are required to overload in subsequent semesters if they fail a course and may have their leave curtailed or be excluded from sports or other activities to allow them more study time. Repeated failures may result in transfer out of the officer training program. Hence, there are strong extrinsic motivations for students to pass every course. Similar extrinsic motivations apply to serving officers. However, while the consequences of failure are serious, the students receive more support than is typical at university level. Students identified as at risk are, in most courses, followed up by the course convener and their Divisional Officer and expected to take remedial classes if available, or demonstrate that they are making additional efforts to pass such as engaging with online materials or working with peers. Support programs are provided in core courses including mathematics and physics, and academic and peer mentoring programs are provided as well as high levels of access to teaching staff. In addition, a trainee officer identified as at risk on an early task may not be allowed to leave the campus on a Friday or Saturday evening with their friends until they demonstrate improved performance. This is a strong incentive for students to lift their performance.

Civilian students within the cohort have access to all the same supports, and also receive emails from lecturers encouraging them to attend additional classes, but, just as at other universities, there are no mechanisms to compel them to attend or prioritise their study.

### ***The Course***

The first year of any engineering degree typically includes core courses that are common across multiple engineering specialisations, for example mathematics, physics, and programming. There are also engineering discipline-specific courses.

<sup>1</sup>The Australian Tertiary Admission Rank (ATAR) is a number between 0 and 100 which gives a student's rank amongst the cohort of students of the same age group. It is the main measure used to determine entry to university, and universities publicise their course ATAR cut-offs, with more prestigious courses having required ATARs.

The total contact time is typically 20 hours per week at UNSW Canberra (and elsewhere), and students are expected to spend a similar amount of time in private study.

The first significant assessment tasks faced by these students are the class quizzes for core subjects such as mathematics, physics and statics, typically conducted in week 4 or 5, with marks returned one to two weeks later. These quizzes are each usually worth 10–15% of the final grade in the particular subject and many lecturers make these quizzes very challenging to show students the standards and level expected and push them into working hard. The remainder of the assessment in each subject is typically a high-stakes final examination (50 – 60%), laboratory work (around 15 – 30%) and other quizzes or assignments to make up the remainder. Following these early tests, students are referred by personal email or general invitation (depending on the subject) to drop-in tutorials, remedial programs, or to make an appointment with a maths/physics support person. Students who fail or receive only a pass in these early tests are far more likely to fail later tests and the final examination, particularly those who do not seek extra help through the remedial tutorials.

## Methods

This work is part of a larger study conducted over a three-year period: the first semesters of 2106, 2017 and 2018. The study used a mixed methods approach: weekly surveys and in-depth interviews to explore students' emotional journeys in first year. The study was granted ethics approval by the university's Human Ethics Research Committee, Panel A (approved project HC15808). To ensure students' anonymity, interviews were conducted by an external researcher with no connection to the university (or the ADF) and interview transcriptions were given pseudonyms. Surveys were anonymous.

### *Quantitative Data – Surveys*

The cohorts described above were given a weekly survey asking them to rate their feelings about their studies and their levels of motivation. The questions were presented as statements with responses marked on a five-point Likert scale from 'Strongly disagree' to 'Strongly agree' to indicate the level of agreement. Twice in semester, around the middle (week 7 or 8) and near the end (week 12 or 13) students were asked what their approximate average grade so far was. Each survey also contained space for written comments.

The survey questions relevant to this paper were "I feel happy about my studies"; "I feel anxious about my studies"; "I feel motivated towards my studies"; "My approximate grade so far is F/P/CR/D/HD", where the abbreviations for grades refer to Fail, Pass, Credit, Distinction and High Distinction respectively.

Each week, surveys were handed out on paper in an early-morning lecture on either a Monday or Tuesday and completed at the time. This facilitated a far greater response rate – minimum 70% of the cohort in any given week, and an average around 80% – than would online surveying. Attendance rates are high at UNSW Canberra, typically greater than 90%, because it is compulsory for trainee officers to attend classes. Survey results were analysed in aggregate and for each year independently.

### *Qualitative Data – Interviews*

In addition to the survey data, students were invited to participate in individual interviews of about 30 minutes. The invitation was posted on the course website and sent by email to all students enrolled in the course. Appointments were made by emailing the interviewer herself. Twenty-seven students of the 349 respondents volunteered: nine in 2016 and 18 in 2017. No interviews were conducted in 2018. Most interviews took place in the second week of second semester. One of the interviews was too short to reveal any information relevant to this study and was eliminated. Of the resulting 26 interviewees, 16 were trainee officers, two were mature-age military students, and seven were civilians. The interviewees included seven women, one a civilian.

The interviews were audio-recorded and immediately allocated a pseudonym to protect the students' identities. They were then transcribed for analysis, and the transcriptions were cross-checked against the recordings to ensure reliability. The data were analysed using a combination of Excel and Word tabulations, using a process of coding and re-coding to allow themes to emerge, as suggested by Charmaz (2014).

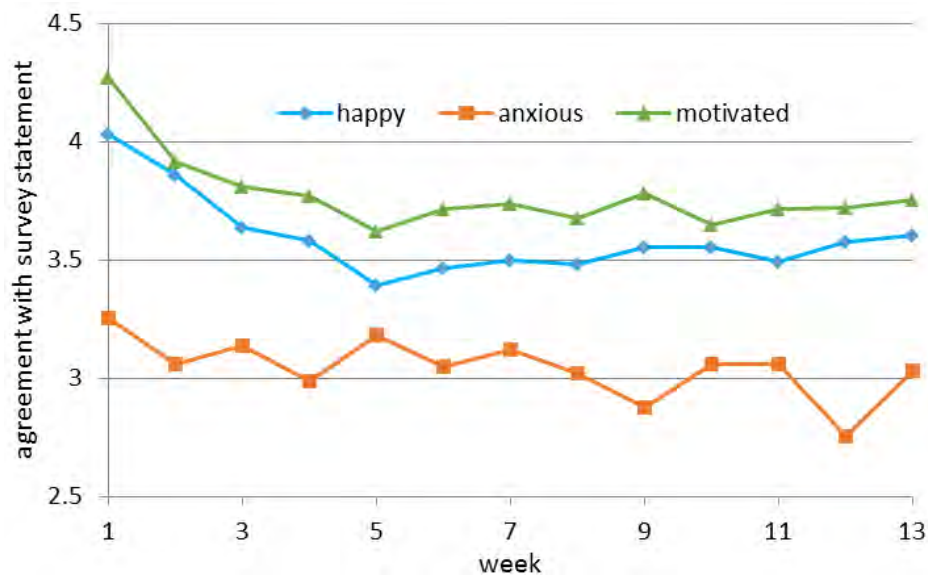
## Findings

### Survey Results

The survey results show that the students experience a general trend of decreasing motivation towards their studies in the first five weeks of semester. However, there were no significant changes in cohort average motivation either when the first tests took place or when the marks were returned. Figure 1 shows the average cohort motivation towards, and happiness and anxiety about, their studies as a function of time for semester 1, 2018. We show the data for 2018 rather than aggregated data, because in each year, particularly 2016 and 2017, there were military events, for example a challenging fitness test, that affected the data. These events correlated with a dip or peak in average response to the survey questions in a single week. For example, the fitness caused a peak in anxiety and a dip in happiness, followed by a rebound in the following week. As the fitness test occurred in different weeks of semester in different years, aggregating the data allows the dips and peaks to obscure the overall trends, such as decreasing motivation over the first few weeks. These trends were observed in all years' data was collected. We choose to present 2018 data as it is the most recent, and a large cohort with a high response rate.

**Figure 1**

*Mean level of agreement with survey statements “I feel happy/motivated/anxious about my studies”, from 1 = strongly disagree to 5 = strongly agree, averaged over the 2018 cohort only.*



In 2016 and 2017 the same pattern of decreasing motivation in the first few weeks of semester followed by an approximately steady level of motivation afterward was observed. In 2018 the only notable features were a slight increase in motivation immediately before the two-week semester break between weeks 9 and 10, and a corresponding dip immediately afterwards when students returned. These features were also observed in 2016 and 2017, although with slightly different timing as the timing of the mid-semester break varies, for example, due to the timing of Easter.

The cohort average ‘happiness’ closely follows their motivation.

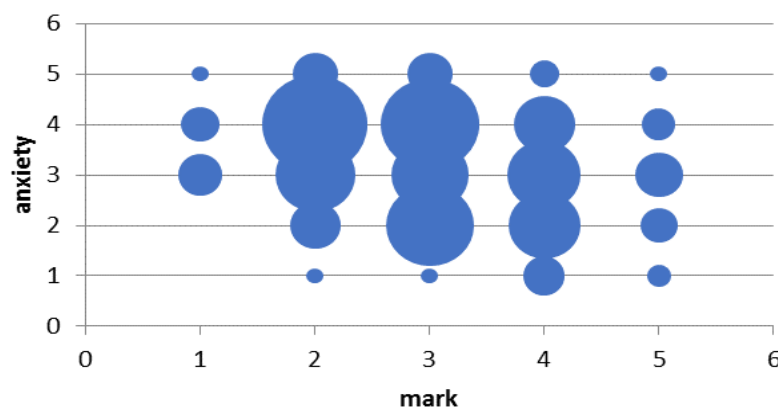
The cohort average anxiety fluctuated over the first half of semester, and these small changes may be associated with early assessment tasks but may equally be associated with events in their military training, such as a fitness test at week 5 or 6. In other years, we observed dips and peaks that could only be associated with military events. The dip in anxiety at week 12 is likely associated with the completion and submission of final assessment tasks (e.g. assignments and laboratory reports) and the exam being not yet imminent.

Cohort averages do not distinguish between those who perform well on the early assessment tasks, and those who do not – the students we are most interested in here. Because of the anonymous nature of the surveys, as required by ethical considerations, we cannot match students' marks to their survey responses. However, the survey data from the middle of semester included the question about grade and lets us relate students' self-reported average grade to their motivation, anxiety and happiness levels (see Figures 2 to 4).

Note that students were asked what their approximate average grade was so far. This average grade will include early assessment quizzes from at least two and probably three subjects. Based on information from lecturers, the fail rate in any given early task is around 20%, and sometimes substantially higher, but it is uncommon for any one student to fail all these early tasks. Hence, any student choosing Pass as their approximate average grade is likely to have at least one fail. Further, a Pass grade (50–60%) at this stage is often a shock to students who have an ATAR of 85 or higher. This is why we group Pass and Fail together as meaning 'poor performance in at least one quiz'.

**Figure 2**

*Self-reported anxiety vs mark at mid-semester, aggregated over 2016–2018. Marks vary from 1 = fail to 5 = high distinction, anxiety scale from 1 = strongly disagree (less anxious) to 5 = strongly agree (more anxious). The size of each point indicates the frequency of that combination of responses.*



The correlation (Pearson product moment, see for example, Heumann, Schomaker & Shalabh [2016], chapter 11) between anxiety and mark is negative, as might be expected (students who are performing poorly feel more anxious), but the correlation is only modest, varying between  $-0.25$  (2016) and  $-0.34$  (2017) during the study (both significant at  $p < 0.05$  level). We find that the correlation between marks and motivation towards their study is smaller, varying between  $0.10$  (2017) (not significant at  $p < 0.05$  level) and  $0.26$  (2016) (significant at  $p < 0.05$  level). The correlation between marks and happiness about studies varied between  $0.21$  (2016) (not significant at  $p < 0.05$  level) and  $0.35$  (2018) (significant at  $p < 0.05$  level), comparable in magnitude but opposite in sign to the correlations between marks and anxiety.

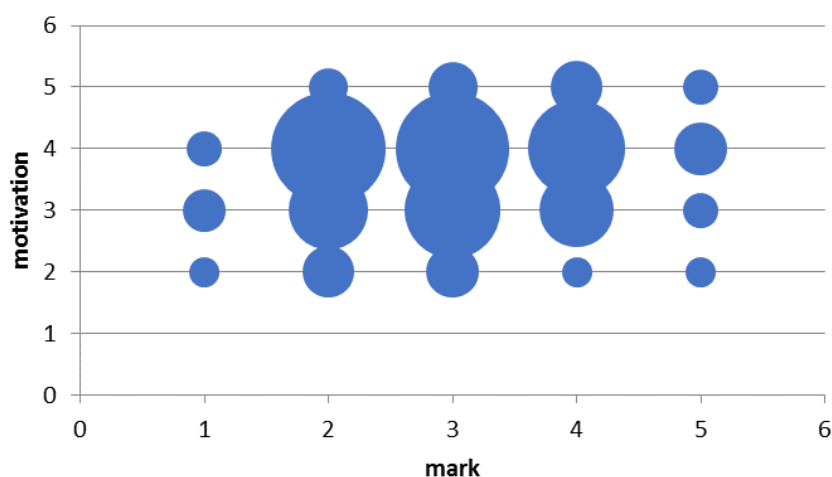
While correlation is not causation, these modest correlations, at least for the larger cohorts in 2017 and 2018, do show that there is at least a weak to moderate relationship between marks and anxiety, but only a weak relationship between marks and motivation. Interestingly, the correlation between motivation and anxiety was small (not significant) in all years and varied in sign. Therefore, it does not appear that, at least on average, anxiety impacted motivation (or vice-versa). We would expect there to be a causal relationship between receiving good grades and feeling happy about one's studies, so the modest correlation here is lower than might be expected.

A bubble plot of self-reported anxiety as a function of mark at the middle of semester, shortly after the marks for the first assessment task were returned, aggregated over all three years, is shown in Figure 2. It demonstrates that those who performed poorly (marks of 1 = fail or 2 = pass) are more likely to feel anxious about their studies than those who performed better. This

is what we expect (and what the lecturers would hope) as the result of a poor grade, especially for a student who was a high performer at school. More of the students receiving a failing grade are neutral than anxious, though none disagree that they feel anxious. But few of these students agree strongly that they feel anxious; so, while few students are reacting strongly, they do not appear complacent. Interestingly, among the students who performed well, there are many reporting that they feel anxious about their studies; of those reporting a High Distinction grade, almost as many agree that they feel anxious about their studies as disagree.

**Figure 3**

*Self-reported motivation vs mark at mid-semester, aggregated over 2016–2018. Marks vary from 1 = fail to 5 = high distinction, motivation scale from 1 = strongly disagree (less motivated) to 5 = strongly agree (more motivated). The size of each point indicates the frequency of that combination of responses.*



**Figure 4**

*Self-reported happiness about their studies vs mark at mid-semester, aggregated over 2016–2018. Marks vary from 1 = fail to 5 = high distinction, happiness scale from 1 = strongly disagree (less happy) to 5 = strongly agree (more happy). The size of each point indicates the frequency of that combination of responses.*

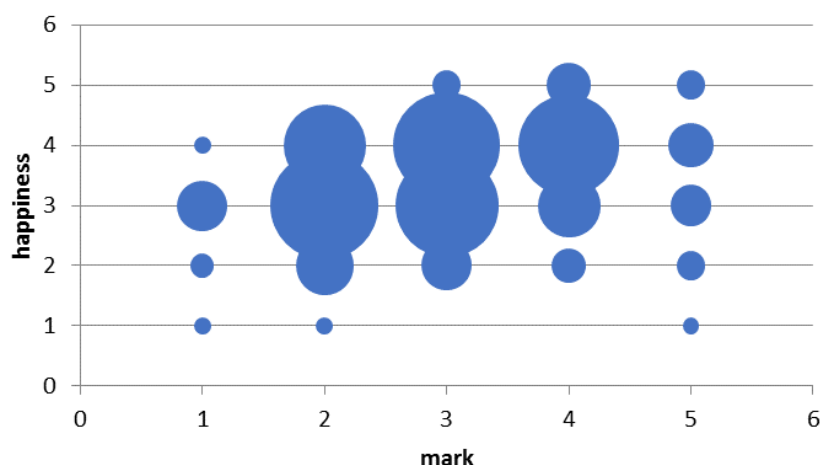


Figure 3 shows a bubble plot for motivation as a function of mark. We expect there to be a causal relationship between marks and motivation, but one that involves feedback rather than a simple directional relationship. Students who are more motivated are likely to spend more time studying, and so achieve higher grades. This achievement is likely to further increase their motivation. However, we can see that there is actually very little relationship between motivation and grades, other than those failing being generally less motivated. However, we cannot say that they are less motivated *because* they failed; it may be that they failed because they were already less motivated. Finally, Figure 4 shows a bubble plot of the paired data for happiness (about their studies) and mark. As expected, students with higher grades generally feel happier about their studies than those with lower grades. However, in every grade category, including High Distinction, there are students who disagree that they feel happy about their studies. Most students who are failing or on a low pass feel neutral, and some are still happy about their studies.

Overall, the survey data demonstrate that the difficult early assessment tasks did not appear to have a negative effect on the motivation of the cohort overall, or on their feelings about their studies. The students who perform poorly on these early tasks (bearing in mind that these are students used to obtaining high marks at school so a pass is a low grade for them) are reporting slightly higher levels of anxiety and less happiness about their studies. The lecturers would argue that this is an appropriate (not a negative) response, and that any student who is failing but not feeling anxious about their studies has failed to grasp their relatively dire situation.

### Interviews

Of the 26 interviewees, 23 had experienced failing (or nearly failing) an early assessment. All of these students reported experiencing negative emotions when they first heard about their fail (or near-fail) grade. Some were angry at first, or disheartened:

I've never failed anything ... so it kind of shocked me. (Fred)

Personally, it was a bit disheartening at first. (Arri)

It was pretty disencouraging ... kind of let down (Rita)

Others were more seriously affected by the experience. Margaret, with tears in her eyes, explained that the worst part of failing was having to tell her parents:

... because you know I went from their daughter who was doing really well academically and got into [the institution] and then having to call your parents and tell them you're in remedial and you failed your first year assessments by a significant amount, especially physics, was really hard.

Nevertheless, of these 23 students, 20 demonstrated impressive resilience. Nigel's response was typical:

You just cop it on the chin. I made a mistake ... I did that ... that's my mark ... that's my name on that test. (Nigel)

Amy expressed this more graphically:

I knew I'd failed. So I had the entire break to sort of get over it and I did quite quickly. I'm not someone who holds on to that sort of stuff for a long time. I got over in – I think it was about 8 hours. I took a really long nap and then – OK I'm moving on now. (Amy)

Most students (17) responded to receiving a fail mark by changing their study strategies. Several of them mentioned that it had made them realise the high standard required at university:

It was definitely a kick up the bum. It made me realise what I had to do to get over the line. (Sophie).

So when I failed at university it was just kind of a wake-up call. It was, like, "Oh, I have to change something because it's really hard". (Fred)



As a result, these students started studying harder, or more strategically:

I was pretty gutted when I found out I'd failed physics ... Well, that was the initial start of me thinking I'm going to have to really look at this stuff and figure out what's going wrong. (Mike)

Many of them decided to attend extra 'remedial' tutorials provided by the school. For James, failing an assessment meant that he was now "just burning for another chance to show that I do know it". He "really amped up" his study strategies and started writing up notes after each lecture instead of after each week.

Nevertheless, three students of the 26 interviewees were seriously shaken by the experience of failure and suffered ongoing anxiety. Simon described the experience of first semester as follows:

It's like I'm swimming – I don't know how to swim and I'm gasping for air, and more weight is being put on my shoulders. You finally can learn a stroke and get above and then you get more weight put on.

One of these students, Matthew, a mature-age student, said:

Seventy-five per cent of my course is based on two things that I've struggled very badly in [maths and physics]... So in all the first semester I was thinking ... I had sort of thoughts about my, I don't know, sense of worth and, "Am I entitled to be here?" ... "Better not being here" and everything like that.

One female trainee officer was overwhelmed by anxiety about the disciplinary action that would ensue from failing: "being screamed at" by her commanding officer, and possibly being removed from the course. Nevertheless, these three students struggled on. As Simon said, "You just have to keep on trying". Somewhat surprisingly, these students also admitted that, despite their anxiety, they were enjoying their studies, and felt proud of being engineering students, in part because of the difficulty of the course: "It's a bit special. Not everyone can do it," said Simon.

Although most students responded to failure by working harder and/or smarter, three students (Laura, Frank and Rita) confessed that the experience led them to feel resigned about their poor performance in a particular subject, and felt that it was better to put their effort elsewhere:

I went, "Well it's a Pass subject, I'm going to do crap here, I don't care." (Laura)

Rita explained that she did not think that the subject was very relevant to her future career: it was better to put her effort elsewhere:

If it was something that like, it was going to be relevant for me later on, I could have put in the hours and gone better ... I'm not going to be doing that [subject] ever again. (Rita)

And Frank decided that a Pass was good enough:

In school, I always wanted to be the top. I did the best I can – A's as much as I could – but when I went to uni I kind of realised, as much as I didn't want to, that a pass is a pass and it doesn't really matter. So it's better to do as well as you can but as long as you pass, you're still going to finish with the same degree as someone who gets 100 per cent on everything over four years.

## Discussion

The survey results show that, overall, the difficult first assessment task did not seriously affect students' motivation, anxiety or enjoyment of their studies, despite at least a third of the cohort receiving feedback to the effect that they were not currently performing at an adequate standard in one or more subjects. The higher levels of anxiety of poor performing students, when not excessive, are considered appropriate by the lecturers – an appropriate response to the feedback that their performance is not adequate for university level engineering.

This was corroborated by the interview data, which revealed that most students, despite initial negative feelings, responded to the experience of failure with resilience. Many of them were grateful that they had been made to realise the high standards

expected early in the course and had changed their study strategies as a result. These students, in Bandura's terms, took an 'approach orientation' (Bandura, 1989, Leach & Cidam, 2015) accepting responsibility for their failure and taking active steps to resolve it. Even those who were seriously struggling, even doubting whether they had chosen the right course, worked hard to overcome their difficulties. Only three students adopted an 'avoidance orientation', and even in these cases, their resignation towards a low grade in a particular subject did not mean that their attitude to study was compromised overall. Sophie's response, and that of the others who took an approach orientation - that the "kick up the bum" administered by the first test helped her realise what she needed to do to succeed - was exactly the response intended by the lecturers.

Several factors contributed to the 'approach orientation' adopted by most of the cohort. First, these students knew they were in good company. Numerous students failed one or more of the early assessments, so they did not feel isolated: a sense of belonging has been shown to be a major factor in student retention (Baik, Naylor & Arkoudis, 2018). In fact, the students had expected the assessment to be tough: before the tests, lecturers had warned them that the assessment would not be an easy task and was intended to help them understand the standards and work required to pass the subject. They were forewarned that the level of problem solving, mathematical rigour and critical thinking required would be significantly greater than that expected at high school, and that these aspects would be assessed. Hence, they were warned not to expect the sort of high marks they were used to achieving at school if they gave the sort of solutions they had produced at school. Also, the assessment mark was weighted to have students try, but not be disadvantaged long-term by a poor result. In other words, although it was tough, this was a 'low-risk' early assignment as suggested in the first year transition literature (Kift, 2009).

Secondly, 'remedial' tutorials and other supports were offered so that students could take action to improve their chances of success in the final exam, and plentiful resources and example questions were available online and in the textbook for students to work on. Thus, it was clear how the students could improve their study strategies – even if that meant that they had to simply work harder. By offering these resources, the university was clearly indicating that students' failure was 'reparable' (Bhanji, Kim & Delgado, 2015) and that with hard work and good study strategies (Stewart et al., 2011) they would be able to pass the subject, and that lecturers wanted them to pass. The students themselves were predisposed to believing that they could succeed: the trainee officers had all had to achieve high secondary school-leaving scores to be accepted into the course, and they generally had confidence in their ability to succeed academically. For the mature-age students who had not studied at high school in recent years, it was harder to maintain confidence. Yet, despite their anxiety, they managed to persevere with their studies with encouragement from their lecturers.

In addition, the students expressed the belief in the interviews that this was an elite course, more difficult and requiring more work than other degrees, and that they could feel proud of passing. Hard work was worthwhile, as graduation would mean that they would become members of a select group.

Although most students (20 of the 23 who had experienced failure) responded with an 'approach orientation', recognising and accepting their poor mark and taking steps to repair their performance, it is nevertheless a matter for concern that three students adopted an 'avoidance orientation'. At UNSW Canberra, as at many other universities, there is a well-known expression *Ps get degrees*. This is particularly the case, as Frank pointed out, because all the trainee officers are guaranteed a job on graduation, providing they pass. High grades are not necessary. It seems that the early experience of failure contributed to these three students being content to settle for a pass grade – at least in that particular subject.

Overall, the results of this study suggest that an early tough assessment in which many students fail or receive low marks is not seriously demotivating for students and may be helpful in setting standards and encouraging students to study more seriously. However, it is important that the tough assessment is accompanied by a clear explanation of the purpose of the assessment and a clear indication of the study support that is available. Lecturers must ensure that students are aware that the university is concerned for students' welfare and has good support mechanisms in place.

We recognise that a limitation of this study is that only students who had persevered to second semester were interviewed (although we note that the drop-out rate at UNSW Canberra is very small due to the nature of the cohort). A matter for concern with tough early assessment tasks is that they may lead to attrition, as students may drop-out after failing. However, when an early assessment task can be demonstrated to be a good predictor of later success, the information such a task provides to both students and academic staff may be a valuable indicator of a students' ability to successfully complete the course. An easy, early task, on which all students score highly will not only fail to provide useful information to lecturers, but may also mislead

students both as to the standards and work required to succeed in the course, and their own aptitude for the discipline. Arguably, it is preferable for students who are not suited to a particular course to drop out early, preferably before census date<sup>2</sup> so that they do not incur fees. As Norton and Cherastidtham (2018) note, dropping out is not necessarily a bad thing, especially when students make this decision early in their enrolment. An early tough assessment task may help students gauge whether a course suits them or not, before investing too much time and money in it.

A second limitation of our study is the particular nature of the cohort, being predominantly military trainee officers who have been selected for personal characteristics, such as leadership potential, as well as because of excellent high school results. The fact that these students are paid to study, and it is part of the commissioning process, may contribute to their persistence and hence the low drop-out rate. The extrinsic motivation to persist is an important factor for this cohort. However, while extrinsic motivation to complete the degree results in lower attrition, it is not likely to improve students' feelings towards their studies, such as their happiness about their studies. Nor is it likely to decrease their anxiety – in fact it is likely to do the opposite. So being required to complete the degree, and being paid to do so, should increase anxiety, whereas, as we have described, we see relatively low levels of anxiety. The unique nature of the cohort, with the strongly supportive collegial environment, moderates the effect of factors such as the pressure to pass and may be a protective factor against anxiety. Civilian universities may benefit from strategies that build community and social support structures amongst their students.

We have noted that this cohort is unique. However, in many ways they are typical university students; they are predominantly school leavers with active social lives, interested in forming relationships, and with a range of interests and commitments in addition to their studies. The nature of this cohort, being comprised of individuals similar to other university students, but having common experiences as a cohort outside of their university studies has advantages for a study of student experience. The emotional landscape of tertiary studies is complex and students' emotions towards their studies are influenced by many factors outside of their studies. This was very clear for this cohort; we observed changes in emotions towards their studies that could only be ascribed to military events outside of their studies. While in a civilian cohort, almost every student is likely to have 'good days and bad days' due to factors external to their studies, these will not coincide across the cohort. For the cohort studied here, the 'good days and bad days' due to events such as fitness tests coincided, and some of these events could be identified in the survey data. We hypothesise from this that any student's emotions towards their studies will be influenced by many factors outside of their studies, and hence beyond the control of their lecturers. Nevertheless, lecturers should always be alert to individual students who are experiencing distress.

## Conclusion

The transition from school to university is challenging for many students. The higher expectations of standards of work, particularly in terms of the critical thinking required in physical science and mathematics subjects, is a significant challenge for many who are used to achieving high marks.

This study indicates that a tough early assessment task with a high fail or near-fail rate, particularly a test done under examination conditions so that students are assessed individually, can be a valuable learning experience for students. It indicates the standards expected and the need for rigorous problem-solving skills and critical thinking, and can provide motivation to students to improve their study habits early in semester when such changes have time to be effective.

However, students' expectations must be managed carefully to avoid them being excessively disheartened. Students need to know that the task is difficult and is set with good intentions by the lecturer. They must be made aware that the failure rate is high, so they are not distressed by believing that they are the only student struggling. Importantly, for students to benefit from the feedback provided by such a task there needs to be adequate and appropriate support provided for them following the task. As other researchers have found, (e.g. Willans & Seary, 2018), universities must ensure that there is a sustained commitment to student support, such as the 'remedial' tutorials that were offered at UNSW Canberra. Students must be encouraged to attend such tutorials and welcomed when they do. In this way, an early experience of failure at university can contribute positively to students' learning and spur them on to tackle the challenges of the new study environment.

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<sup>2</sup> The census date is the last date that a student can withdraw from a course without financial liability. This is earlier than the last date to withdraw without a fail result being recorded.

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