Student mindset: emotional responses to the university learning journey

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Student Mindset: emotional responses to the university learning journey

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Abstract

Drawing upon a longitudinal data set collected between 2018 and 2022, this paper examines student's emotional responses at the start of their university learning journeys. From this data we suggest that students overall report consistently a positive, growth mindset. We show that this is a relatively stable attitude across disciplines and student background, even during the pandemic in 2020-2021. We also find that the beginning of students' journey at the University is characterised by relatively strong set of emotions. Based on these findings we recommend that, as staff, we need to develop teaching and support that facilitates students to maintain this positive mindset whist taking into account the emotional charge of the first weeks of university life.

Introduction

This paper draws upon primary research conducted between 2019 and 2022 examining students' mindsets as they enter the university and builds on more qualitative discussion of students' and staff' respective perspectives on the beginning of the university learning journey (Whittle, 2022). Our aim was to understand how students' emotions affect their attitudes to learning, which in turn could help academic staff and tutors to prepare students more fully for their university learning journey, and to provide adequate support. The overarching aim is to enable students to understand their Mindsets, and thus to develop or change their attitudes to learning, embrace opportunities to learn from 'productive failure' (Kapur, 2016), and become more resilient learners.

Drawing upon Dweck's model of growth vs fixed mindset (Dweck, 2017), the survey aimed to connect incoming students' feelings with data on attitudes to learning. Anyone who has taught undergraduates will have spoken to students where the reason for the conversation was not that the student had not understood a point or wanted to ask a question on the content. Rather the issues were framed by their emotional responses to study and feedback (for an analysis of impact of emotions on learning see for example Pekrun (1992) and specifically for feedback Shields (2015)). For example:

- I have put so much work into this assessment, how can it be that I don't have a better grade?
- I experience … at home and I am unable to complete the work by the deadline.
- I have a very high mark in (e.g. Spanish), I am angry that I cannot understand my lecture in Spanish.

It is this **emotional experience** that our research aims to capture, with data collected via an online survey examining students' feelings in Welcome Week. During the survey's iterations, and across an increasing number of cohorts at the University of Birmingham, we not only created a database of emotive responses, but also encompassed the rapid change and turmoil that HE encountered during the Pandemic. This is in part captured in our data, and we will speak of its impact as part of our analysis.

Methodology

To create a base level of data, an online survey was circulated to first year undergraduates as they began their learning journey in welcome week. Between 2018 and 2021, increasing the number of schools that the survey was circulated to from 1 to 6 in its final iteration. This provided both a comparative between disciplines, and over time. In this study, we focus on 2019, 2020, and 2021 intakes with 238, 128, and 205 respondents respectively, representing the largest and most recent data. As part of each of the start-of-the-term surveys, students were asked to give three words describing their feelings/emotions. The obtained data was cleaned and harmonised (to exclude variations of the same sentiment, e.g., "exciting" and "excited"). Several methods of analysis were then used: word clouds gave an initial description; words were given a red-green-blue characterisation depending on whether the word was categorized as describing negative-positive-neutral emotions respectively (attributing valence, similarly to Rowe et al. (2014));the order of words (positive first, negative first, etc.) was considered; the combination of positive & negative words (how many out of the three provided) was also taken into account. Counts of specific words and score averages, standard deviations, distributions etc. were compared across years and disciplines (represented by enrolment in different Departments/Schools).

We were surprised to find that the methods above agree on the same conclusion: there was no substantial change between 2019, 2020, and 2021 intakes in the strength and type of emotion; indeed, the same words "excited" and "nervous" dominated all waves of surveys, with "nervous", "anxious", and "overwhelmed" in next prominent positions. This was particularly surprising as the survey included cohorts studying during and just after lockdowns. Similarly, there is little to no variation across different disciplines.

This data has to be analysed with some caution, though, and consider challenges in interpreting these types of surveys in regard to issues of representativity, reporting bias, eliciting responses that students think the researchers want to see etc. It is useful to note that while we have captured freshers' emotions in the welcome/first week of the semester, we do not know how quickly these feelings, and especially, the strength of feelings dissipates over time (when being at university becomes a routine). Similarly, and particularly in context with large numbers of international students and broadly multicultural background, we cannot be sure that the terms we used in the survey, or the emotions students cited, were understood the same by all participants (as well as the researchers).

Results

The first result presented above, specifically that there is little difference between the type of emotion students report to be experiencing, can be illustrated with three word clouds, including data across all disciplines (Fig 1).

It is perhaps worth noting that the first word given in 2019 is usually a positive feeling, yet in 2020 the 1st word is usually a negative feeling, despite the proportion of each type of word staying the same; more broadly there were fewer "positive" feelings

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overall in 2020, the year when students' intake was most directly impacted by Covid-19 / lockdown uncertainties.

Student Mindset

To explore students' beliefs about their own intelligence and learning at university, in other words, their mindset, and how this differed between the 3 cohorts, we performed an exploratory factor analysis on the mindset survey data and examined differences in the patterns of responses across the years.

The purpose of an exploratory factor analysis is to provide insight into usual response patterns and these response patterns ('factors') can then be compared across groups of participants. The nature of a factor is determined by analysing the wording of the questionnaire items that cluster together and summarising what the grouped items have in common.

Performing an exploratory factor analysis on our 3 years of survey data, we extracted 5 factors, with relatively little overlap with each other. These are as follows:

Factor 1: "Talent exists and is basically fixed"

This factor pulled together items that suggested that you 'have to be 'born with it'' and that there is little room for change in this regard. Across all three years, there tended to be some agreement with the Factor 1. This was higher in the 2021 cohort, but the size of this difference was small. This suggests that many students broadly agreed

that intelligence was a fixed entity which individuals brought with them to their studies. This factor explained most of the variance in the data, suggesting that these beliefs play an important role in students' conceptualisations of intelligence.

Factor 2: "Bring on the challenge"

This factor consisted of items that were about desire to learn new things, being prepared to carry on in the face of difficulty or mistakes and being appreciative of feedback. Most students agreed with this factor (the average 'agreement-score' falling between "somewhat agree" and "agree"). The 2020 intake agreed statistically significantly less than 2019 and 2021 intakes, but the effect size was small. This suggests that students coming to university in 2020 were a little less confident than their 2019 and 2021 peers in relation to challenges to be faced. However, it is worth noting that this factor is also probably most vulnerable to participants feeling that they should agree with it.

Factor 3: "I like to feel comfortable/safe while learning"

The items loading onto this factor were about specifically new things feeling stressful, avoiding such things, and about the need to work hard making participants feel not very smart. It also included an item about intelligence being basically fixed. Across all years, participants tended to somewhat disagree with this factor, and there were no differences across the cohorts. This suggests that students appeared to recognise that learning can be a challenging and uncomfortable process. This factor effectively represents an opposite pole to factor 2, and those students who agree with factor 2

would tend to disagree with factor 3. Notably, the small reduction in agreement with factor 2 in the 2020-cohort was not accompanied by a matching increase in agreement with factor 3.

Factor 4: I prefer it straightforward and error free

This factor was about the desire to avoid making errors and the preference to do well without having to put in too much effort. The overall response pattern for this factor was to disagree somewhat, but there was a statistically significant difference in agreement with the 2019 cohort agreeing slightly more than 2020 and 2021 cohorts. Disagreement with this factor suggests that respondents accept errors and the need for effort as a necessary part of the learning process. The pattern in responses is interesting, as it suggests that before the pandemic – which highlighted human fallibility and uncertainty in an all-encompassing way – students were a little less willing to tolerate making errors or having to put effort into their learning than their peers who started during a time of increased uncertainty or just after.

Factor 5: It's possible to develop as an individual

This factor encapsulates the idea that it is always possible to change substantially as a person. Participants generally didn't agree or disagree with this idea, but the 2021 cohort agreed statistically significantly more with it than the 2019 cohort. This may be another instance of the change of perspective on what is possible in the world that the pandemic demonstrated so dramatically.

Fig 2 here

Our data enabled us to investigate several possible correlations. No statistically significant correlations were found between the "type of person" (positive/negative/neutral) and gender, accommodation, or even "preparedness" and "doing well"; where both how prepared students felt for university and the how well they expected they would do were subjectively self-assessed by respondents. Similarly, the level of reported preparedness was not found to be correlated with gender, meaning that we are unable to comment on gender-based levels of confidence, or accommodation, which could be used as an indicator of socio-economic background. Given the absence of significant results on the expected relationships above, it's even more interesting to observe the impact of different mindsets, including on the five factors explaining students' attitude to learning.

Fig 3 here

The "type of person" (optimistic/pessimistic/neutral), which we understand exclusively as based on the emotional changes of the given words, without trying to generalise further, is related to mindset: there is a small, but consistent correlation between optimism and growth mindset across all three years. It is interesting to note that the 2021 intake is more growth-oriented than the previous two years, perhaps illustrating the hopefulness after the lockdowns. Overall, this suggests that even a snapshot of the emotional state may be revealing of a more embedded opinion. This may mean in turn that the emotional state can or even has to be harnessed for developmental purposes, particularly at the start of the students' learning process at university.

<u>Discussion</u>

The Covid-19 pandemic was, and in many ways remains a huge disruptor to many opinions and habits. It would be natural to expect that the emotional awareness students come with to university changed as well. While there is ample evidence that the mental health of young people has been affected by the pandemic and subsequent lockdowns (for adults in general see Chandola et al. (2022) and for young people specifically Waite (2021)), it seems that the self-reported feelings of students **concerning their start at the University** have not changed significantly between pre- and during pandemic cohorts. However, further research is needed to understand the long-term impact of the lockdowns and how this could be addressed meaningfully, both in terms of changes in emotional charge/valence at the start of the academic year, but also during the academic year itself.

One of the possible conclusions from these preliminary observations (acknowledging the data limitations) is that the emotional charge and the "freshers" emotional background is (i) consistent/stable and (ii) of significant strength. If (i) is correct, then the feelings of first year students can be predicted/anticipated – which makes those feelings more manageable. If (ii) is true, then these feelings could (or should) be considered, as emotional background has an impact on learning (Pekrun, 1992). A strong emotional charge can be used for some constructive purpose, but it also imposes limitations. The immediate practical implication, which has already been discussed across a number of Schools at the UoB, is the content and the intensity of the Welcome Week. Reaching out to large cohorts (300+ students on a programme) with important information in Welcome Week is a challenge; including key messages

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in pre-welcome communications and repetitions / re-inductions later in the semester / year are the options which are used in different Schools.

However, a wider awareness and recommendation is, perhaps, necessary. The results highlight the existence and the potential significance of emotions. Aside of their impact on learning, the wider context of challenges with mental health and emotional wellbeing of young people raises the question of emotion management, resilience, and education. In turn, this feeds into the considerations of how to foster social interactions and social intelligence, which is the foundation of group/teamwork, cohesion, integration, and community-building. The importance of these at university, in the workplace, and in society in general, cannot be overstated; thus, the question is whether we provide a good environment for development of soft / invisible (but vital) skills of emotion management to our students (Wei et al., 2020 provide an interesting perspective). One of the crucial examples is the emotional response to feedback (whether during the studies or at work) which impacts significantly on how this feedback can be taken forward. The question is then: should we start considering emotion processing with our students at the time when (mostly positive) emotions are running high, at the start of the year?

Conclusion

Drawing upon the data collected, we can see that students at UoB are 'open to the challenge' of studying at university. This is a relatively stable attitude across disciplines and student background. Even during the challenging circumstances of the pandemic in 2020-2021, student mindset remained relatively optimistic, correlating to a growth mindset. As staff, we need to facilitate ways for students to maintain this positive mindset amidst the emotional charge of the first weeks of their university

learning journey. This is something that can be achieved though closer consideration of the role of personal and group tutorial activities during the first weeks of commencing an undergraduate degree.

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Figures

Fig 1 Word clouds of three words students chose to represent their feelings over the Welcome week, in respectively 2019, 2020 and 2021.

Fig 2. The factor scores across the three years. Point 4 on this axis corresponds to 'neither agree nor disagree'. (*Statistically significant differences are marked with asterisks *).*
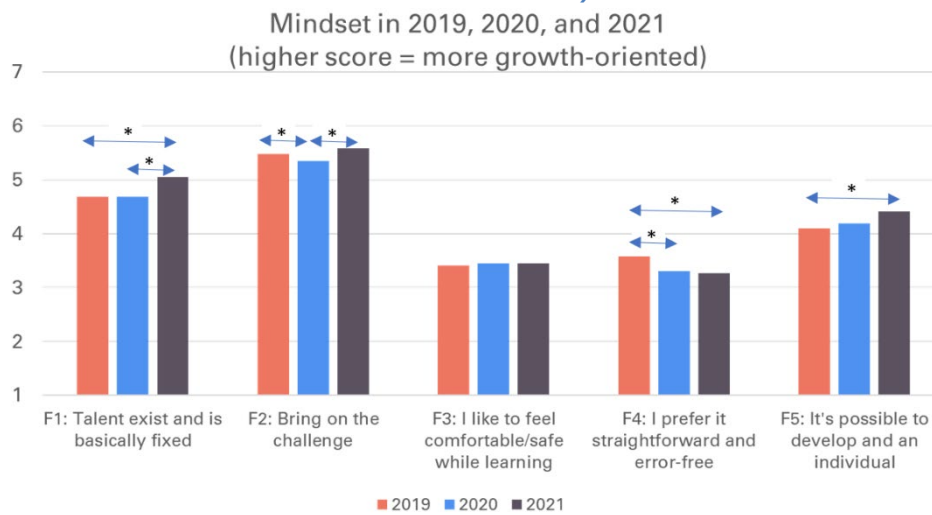
Fig 3. Type of person and the attitudes towards learning. Note: Higher score indicates greater agreement with the factor.