Journal of University Teaching & Learning Practice

Volume 20
Issue 3 *Quarterly Issue 1*

Article 08

2023

Understanding the commencing student mindset to better support student success: A typology of first-year students' motivation, preparedness and perceived support

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Recommended Citation

Midford, S., James, S., & Kanjere, A. (2023). Understanding the commencing student mindset to better support student success: A typology of first-year students' motivation, preparedness and perceived support. *Journal of University Teaching & Learning Practice, 20*(3). https://doi.org/10.53761/1.20.3.08

Understanding the commencing student mindset to better support student success: A typology of first-year students' motivation, preparedness and perceived support

Abstract

This article presents a typology of student mindset on commencing their studies at university. Using the results of a sample of over 400 first-year humanities students enrolled in a generalist degree at a mid-tier metropolitan university, we performed a cluster analysis informed by self-reported student motivation, preparedness and perceived support. Four types were generated: the 'Coasters,' the 'Reluctants,' the 'Passionates' and the 'Fight or Flights.' The types generated exhibit a statistically significant correlation with final grade achieved. The predictive power of the generated types indicates that this form of typology is an appropriate conceptual model for understanding student success in the first-year context. As participation in higher education widens, scholarship has triggered a rethinking of the factors that determine student engagement and success across increasingly diverse cohorts. Our analysis shows that student mindset on commencing university, in conjunction with other factors including socio-economic circumstances and course preference, has significant impact on student success.

Practitioner Notes

1. Addressing the impact commencing student mindset can have on student success
2. Exploring the relationship between commencing students' achievement and self reported feelings of preparedness, motivation and perceived support
3. Defining broad 'mindset types' evident in commencing Bachelor of Arts students using cluster analysis
4. Builds on existing international research into characterisation of the student experience and transition to university
5. Offers insight into supporting diverse student cohorts as part of widening participation in Higher Education

Keywords

First-year student, student success, typology, motivation, preparedness, support

Introduction

Student typologies have become popular in higher education research as a way of analyzing and supporting diverse student cohorts. Recent typologies (Jenert et al., 2016; Mu & Cole, 2019) have focused specifically on the challenge of student engagement and the transition to university. The importance of the transition to tertiary study and the first year experience for student success has been increasingly recognized in higher education literature and university culture globally (Pascarella & Terenzini, 2005; Kahu & Nelson, 2018). To date no typology of the first-year student cohort exists in the Australian context. This article presents a typology of first-year students' dispositions to university study—or 'mindset'—based on their self-reported motivation, preparedness and perceived support upon arrival.

Participation rates in higher education globally are increasing and the sector is welcoming more students from diverse backgrounds than ever before (Metcalf & Weiner 2018; British Council, 2017). The United Nation's Sustainable Development Goals (2015) strongly argue for the widening of participation in higher education by 2030, with a focus on ensuring equal access for minority and vulnerable groups. Universities now welcome increasing numbers of so-called 'non-traditional' students, including those classed as mature-aged, of lower socio-economic status, from an international background and/or those who are the first in their family to attend university. As a consequence, student cohorts are increasingly varied with regard to students' levels of preparedness, motivation and access to social and economic resources (MacFarlane, 2018).

Student recruitment from more diverse backgrounds can lead to the participation of individuals in university education who are less prepared than more traditional students. In response to this, in recent years the sector has seen an increased emphasis on student engagement, supporting student success and the first-year experience. Many institutions have redesigned curriculum and teaching and learning strategies to maximize student engagement (McCormick et al., 2013; Kahu & Nelson, 2018) and have implemented programs for personal and academic support (Nelson, Duncan & Clarke, 2009). There has also been an increased focus on the importance of the first-year transition to university and the necessity of supporting students through this transition (Kift, 2009; Sanagavarapu et al., 2019). One key strategy addressing this issue has been the implementation of compulsory or non-compulsory first-year seminars to the first-year curriculum (Tinto, 2012; Everett, 2017). These seminars aim to assist students in making a successful transition to university and may focus on the development of academic skills or as an introduction and orientation to a particular area of study. They aim to provide students with a sense of institutional support, which is linked to students' personal and social competence (Reason et al., 2007), and to foster a sense of belonging which, as Kirk (2018) finds, is crucial to retention in higher education.

Study Context

The survey responses used to construct the typology presented in this article were drawn from

Academic Editors

Section: Student Experience
Senior Editor: Dr. Sally Ashton-Hay
Associate Editor: Cathy Mae Toquero

Publication

Received: 10 March 2022
Revision: 11 October 2022
Accepted: 20 February 2023
Published:

a cohort of students enrolled in a Bachelor of Arts (BA) at La Trobe University, in Melbourne, Australia. Student attrition has become a significant challenge in this course, with many students leaving the course before graduation with incomplete qualifications (Mestan, 2016). In recent years, the BA has had a course retention rate of around 60%, which is 10% lower than the university average (Harvey & Luckman, 2014). The authors of this article have been curriculum designers of, and seminar leaders in, a first-year seminar aimed at addressing this retention issue since 2015. In attempting to support this cohort of students, and tailor curriculum to suit their needs, one of the key challenges we face is catering to a diverse cohort of traditional and non-traditional students from varied demographic backgrounds. Our shared experiences in the classroom led us to reflect that students' diverse motivations for undertaking the BA, their broad attitudes to university study and their varied levels of preparedness and support were important determinates of success. To better understand our students, we designed a survey and assessment task that asked them about their motivations, feelings of preparedness and perceived levels of support (the details of this are explained below). In an era of 'credentialism' and facing the emerging crisis of articulating the contemporary relevance of humanities in higher education, there is often some hesitation amongst students who undertake liberal arts degrees (Telling, 2018).

In the context of broadening participation in higher education, diversity of the student cohort is of increasing importance in characterizing the student experience (Chesters & Watson, 2016), particularly with regard to transition to university (Buchanan et al., 2015; O'Shea et al., 2018). Engaging with student diversity, however, should not encourage generalizations from demographics which fail to account for individual student variation and agency (Rochecouste et al., 2017). The significance of learner qualities such as autonomy, persistence and resilience is well established by the literature (Henri et al., 2018; You, 2018). Furthermore Kahu (2013) has shown intrinsic and extrinsic factors are interrelated, in that the psychology of student engagement must be contextualized by the wider socio-political context. Studies have shown that the personal attributes of students from vulnerable backgrounds are important in determining how challenges will be experienced by those students (van Breda, 2018). For these reasons, a typology combining motivation, aspiration, engagement, and learning outlook with questions of financial and family support was desired. The criteria of interest used here also correlate well with the recent study by Naylor et al. (2018), which identifies constructs of Belonging, Supported, Intellectual Engagement and Stress as a basis on which to conduct their investigation of student experience.

Hypothesis

Student typologies are an increasingly popular measure of classifying students into categories for analysis and evaluation of education practice. As such, a plethora of student typologies have been developed, with the earliest (Clark & Trow) published in 1966. Each typology draws on slightly different methodologies to answer the particular practical or theoretical issues faced by the authors. Fosnacht et al. (2016) and Quadlin and Rudel (2015) propose typologies based on student use of time. Others are based on engagement (Hu & McCormick, 2012) or outcomes (Knight, 2014). Weissman and Magill (2008) focus particularly on a typology which would enable researchers to measure and improve seminar effectiveness, while Sawon et al. (2012) developed a typology around intrinsic and extrinsic factors impacting lecture attendance.

Most informative to the present study were the typologies developed by Hu and McCormick (2012) and Jenert et al. (2016), which are situated on the problematics of student engagement and transition to university respectively. Our teaching experience suggests that student engagement is of particular predictive importance in student success: this conforms to findings by Van Herpen et al. (2017) that pre-university motivation and engagement (as 'effort') impacts positively on first-year retention. The transition experience is also an important determinant in our analysis as the cohort are selected because of their participation in a compulsory seminar designed to facilitate student transition (James et al., 2015). We hypothesized that the student body in question could be meaningfully represented by a typology that drew on self-reported characteristics relating to motivation, preparedness and perceived support.

We were interested in how the students' motivation and engagement in the learning process interacted with the kinds of decisions and aspirations that had led them to the university and where they hoped their studies might lead them. We hoped that this survey would provide insight into the cohort that would allow us to identify at-risk students early and would assist us to create more tailored student support. The study was based on the hypothesis that the combination of students' feelings of motivation, aspiration, engagement, belonging, support and stress—what we call 'mindset'—would be predictive of success, and built on studies by Nelson, Duncan and Clarke (2009) and work by Mestan (2016). Secondly, building on the work into student preparedness gauged through a pre-commencement survey, undertaken by Jansen and van der Meer (2012), our study considers preparedness as self-perceived readiness for university and hypothesizes that students' perceived levels of preparedness correlate with student success.

Methodology

The typology is based on a survey of over 400 students commencing a Bachelor of Arts degree (BA) in Melbourne, Australia. The data was collected in week 3 of the degree's first semester, allowing the authors to access students' initial dispositions upon arrival at university. This study drew on data collected as part of a university-based research project 'University Education and Vocational Aspirations: A Study of First-Year Students in the Humanities and Social Sciences,' at La Trobe University in Victoria, Australia. Students enrolled in a compulsory first year BA[1] core subject, were invited to participate in the research, yielding 441 participants from the metropolitan campus.[2] Data for this study was drawn from a particularly diverse student cohort in terms of socioeconomic and ethnic background and parents' educational level (Midford & James, 2017). For a breakdown of participants' profile, refer to Table 2 for their age, gender and ethnicity. A paper-based questionnaire completed during class time captured demographic information, motivations for enrolling in a BA and self-evaluated levels of preparedness and support. In addition, students gave permission for their first assignment in the subject to be used as part of the data collection. This was a short reflective assessment about university education and

[1] Students enrolled in this subject were completing a Bachelor of Arts. This course allows students considerable choice, allowing them to select Majors and Minors from the following areas: Aboriginal studies; Ancient Mediterranean studies; Anthropology; Archaeology; Asian Studies; Asian and European Languages; Communication studies; Creative and professional writing; Creative arts; Crime, justice and legal studies; Economics; English; Gender, sexuality and diversity studies; History; Latin American Studies; Linguistics; Mathematics; Media; Philosophy; Photojournalism; Politics; Psychology; Sociology; Sustainability and development; Theatre and drama.

[2] Data was also collected from students at the regional campuses of the university in question, however, these cohorts were too small to yield a suitable sample size for the present means of typology development.

vocational aspirations. The qualitative data gleaned in response to these questions was used to supplement the quantitative data yielded by the questionnaire. This approach drew on the work of Mallman and Lee (2017) who combined an analysis of a short reflective assessment task with a short survey to research Anthropology students' lived experiences of university culture. This research method allowed them rich data and "access to perspectives that students do not often have the opportunity to express" (Mallman & Lee, 2017, p. 517). While Mallman and Lee's (2017) survey only collected demographic details, in this study the survey also included items asking students to rank their feelings of support, confidence and inclusion on a ten-point scale (see Table 1). The development of these questions was informed by Mallman and Lee's (2017) findings on students' early experiences of university culture as well as the research team's experiences of teaching and supporting first-year students. For the purposes of our study, student responses to the prompts in Table 1 were analysed using cluster analysis, following the approach favoured by Hu and McCormick (2012).

Table 1

Questions used to generate the typology

As a student, do you consider yourself…?		
Not an independent learner	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Completely independent learner
Unprepared for University	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Fully prepared for University
Don't feel I fit at University	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Feel I fit at University
Not confident in my abilities	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Very confident in my abilities
Not motivated for studies	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Highly motivated for studies
Financially insecure	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Very financially secure
My family are supportive of my studies	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	My family are <u>not</u> supportive of my studies
Socially <u>isolated</u> at University	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	Socially <u>integrated</u> at University
The University supports my needs as a student	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	The University does <u>not</u> support my needs as a student
My priority is just to pass	1…..2…..3…..4…..5…..6…..7…..8…..9…..10	My priority is to excel

The study focussed on self-reported data using a survey tool. This is the most common measurement tool for assessing student engagement because it is important to understand how students perceive their own engagement; to gage insight into the emotional and cognitive aspects of their engagement in a way that is not possible through participation metrics such as assessment submission, class attendance and online engagement (Christenson et al., 2012). The decision to

use a survey instrument to collect data was influenced by comparable research undertaken Mallman and Lee (2017), and Jansen and van der Meer (2012). Anonymity was key to the study because it encouraged honesty. Final grade for the subject was also recorded for each student, and formed a part of the de-identified dataset.

Data Analysis

To generate the typology, we used quantitative data points on student mindset in which students self-ranked their motivation, preparedness and feelings of support. Students were asked to indicate this in in relation to 10 specific variables on a numeric scale (see Table 1). After the data was cleaned to remove partial respondents, 412 responses remained. Scores were then transformed into standardized z-scores for each of the ten questions. A non-hierarchical k-means cluster analysis was then performed using the standardized scores. Meaningful cluster numbers are most likely to fall between 3 and 8 (Hu and McCormick 2012); accordingly we tested for each number of clusters in order to determine which was most meaningful in interpreting the data.

Results and Discussion

The data converged on four clusters after 11 iterations. This is a strong indicator that the data conforms to the four clusters. Simultaneous analysis of variables indicates that all 10 categories contributed to the formation of the clusters ($p<0.01$). Post-hoc ANOVA analysis confirmed that variation between groups was larger than within groups to a high level of statistical significance ($p=0.001$). Four clusters is a suitable number for interpretation, offering a balance of diversity against the risk of repeating categories. The number of cases in each cluster also shows a reasonable level of convergence: the ratio of cluster sizes remains below 1:3, indicating robust representation in each cluster. Figure 1 illustrates the four generated clusters with their mean z-scores for each of the surveyed categories.

Clusters developed through statistical analysis of empirical data were verified through interpretative analysis. The authors' teaching experience in the seminars allowed for conceptual analysis of the clusters. The clusters were also able to be tested against students' final grade for the subject and other quantitative information collected in the questionnaire including: age, gender, ethnicity, first-in-family and commute time to university. Qualitative data collected from assignment responses was cross-referenced to the clusters, deepening our understanding of each cluster. The student cohort investigated exhibits four clusters, defined by their responses to the survey questions, and correlated to a high level of statistical significance with their final subject result ($p< 0.05$). This means surveying the initial presentation of students at university in terms of circumstances and support, motivation, attitudes and disposition is predictive of future success. The results of the survey were the basis for our typology, which has predictive powers relevant to both educators and policy-makers. Reflecting on the clusters from the authors' shared classroom experience, we came to the following characterizations of the four types: The 'Coasters', the 'Reluctants', the 'Passionates', and the 'Fight or Flights'.

Figure 1

Results of K-means Cluster Analysis

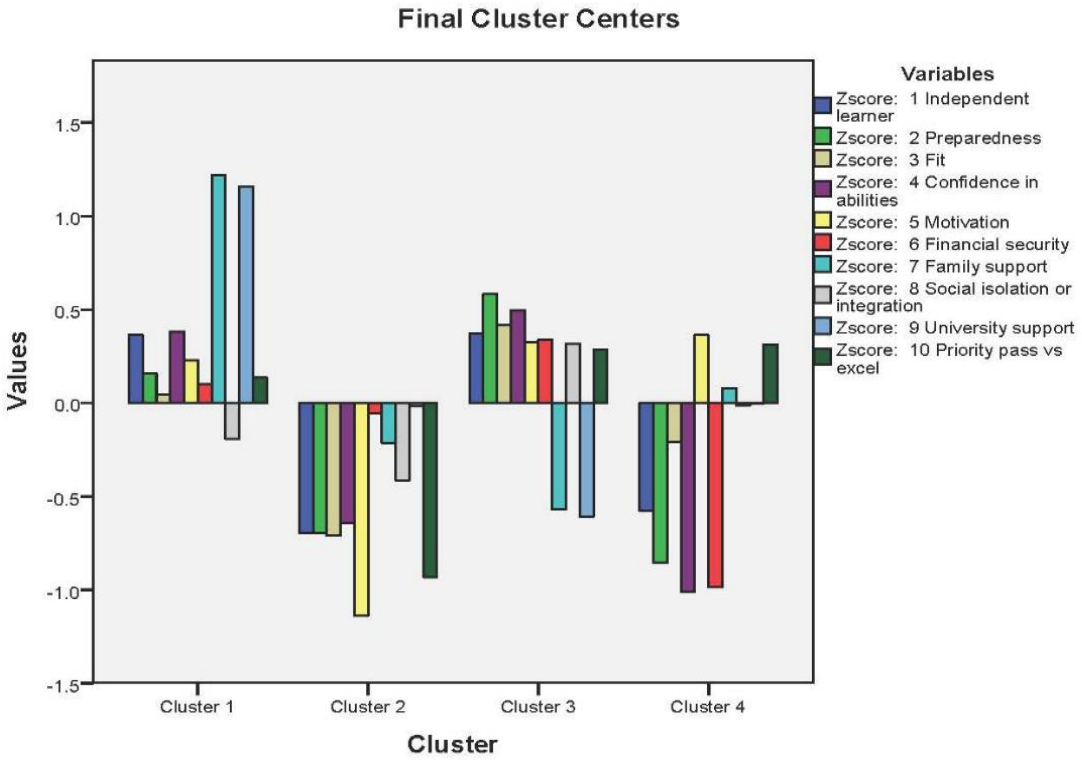

Table 2

Demographic data by cluster membership

		'Coasters' n=91	'Reluctants' n=87	'Passionates' n=171	'Fight or Flights' n=63	Total
Age Range (%)	17-21	71.4	85.1	79.5	73.0	77.9
	22-35	23.1	13.8	15.8	23.8	17.5
	36+	5.5	1.1	4.7	3.2	4.6
Age (distribution)	Mean	21.6	20.0	21.0	21.1	21.0
	SD	6.42	4.33	6.81	6.43	6.21
Gender (%)	Female	63.7	59.3	63.5	77.0	64.7
	Male	36.3	40.7	36.5	23.0	35.3
Ethnicity (%)	Australian	65.9	72.4	67.1	56.5	66.3
	Other	34.1	27.6	32.9	43.5	33.7
First in family (%)	FIF	46.7	53.0	56.0	56.7	53.4
	Not FIF	53.3	47.0	44.0	44.0	46.6
Final Mark (distribution)	Mean	66.4	64.7	71.6	64.0	67.8
	SD	15.8	16.8	12.8	20.0	15.9

The ‘Coasters’ (n=91)

The students who form the ‘Coasters’ live closest to the university, indicating that they have marginal financial security, and are more likely to have parents who completed higher education than those who fall into the other three clusters. Achieving the second highest average results (66.4%), they feel well supported by both their families and the university. One Coaster wrote:

> My family’s unwavering support of whatever decision I made meant that I had total autonomy over my academic career, and this led me into making a rational decision that supported my desire for further edification, as well as setting me on a pathway toward a career that I would enjoy. (Female, 19)

However, Coasters feel somewhat socially isolated, which might be accounted for by their short commute to university, because, unlike those with longer commutes they are able to come onto campus exclusively for classes and then leave. Their confidence and sense of preparedness, combined with their moderate ambitions for their studies mean they are likely to attend classes strategically rather than regularly: as found by Fryer et al. (2018), class attendance is often motivated by a sense of ‘ability deficit’ which these students do not experience significantly. Their high levels of family support and financial security may also indicate they have study spaces available to them in their homes and are not reliant on campus study spaces, again reducing their connection to social life at the university.

This group has been named the Coasters, because, although they are likely to have enrolled in the BA by choice, they are not necessarily strongly committed to their studies or to being part of university culture. Their average grades reflect their self-described moderate desire to achieve good results; they are not at university to excel. What defines these students as ‘Coasters’ is that, despite their low levels of ambition, they are ‘cautiously optimistic’ about their studies, reporting that they fit at university, have confidence in their abilities, and are somewhat prepared for their studies; believing themselves to be independent learners, with moderate levels of motivation. Their laisser-faire attitude to university is facilitated by positive feelings about family and university support, ease of travel, and an absence of financial insecurity. Perceived support from family and university staff have been shown to have a positive and significant effect on student motivation and engagement (Descals-Tomás et al., 2021). Purcell et al. (2008) contend that students who have a family member who attended university are more likely to feel supported than those who are the first in their family to attend university. Approximately 40% of second-generation university students are encouraged to attend university by their parents, compared to approximately 25% of first in family students (Purcell et al., 2008). In a UK study of engineering students, Hunt et al. (2018) found that almost three quarters of second-generation students reported that their family expected them to attend university. The same study found that only 40% of first-generation students’ parents had the same expectation of their children. The Coasters, then, can be complacent because their support mechanisms give them a greater sense of confidence and preparedness for university, which reflects the findings of these three studies.

The 'Reluctants' (n=87)

The 'Reluctants' are the most disengaged section of the cohort. Their average marks are the second lowest of all four clusters (64.7%), which reflects their exhibition of the lowest levels of motivation. Brint and Cantwell (2014) argue that 'motivation disengagement' occurs when students are not motivated to achieve their goals at university. This disengagement may be attributable to a number of factors and does not necessarily indicate that the student does not value their education, just that there are other things that are taking priority in their lives. Male students are more likely to be disengaged than females. The Reluctants are not motivated to excel, focusing predominately on passing—as one student reported, 'I will be happy if I just pass' (Male, 29). Demographically, three quarters of these students report Australian ethnicity, they are the youngest cluster, are marginally financially insecure, and there are proportionally slightly more males in this cluster than in the other three.

This group has been named the 'Reluctants' because they have enrolled in a BA not out of any desire to complete the degree, but because, although they felt compelled to move on to Higher Education, they have not yet decided on their passion or desired career outcomes. As the youngest cluster, these students are the most likely to be enrolling straight out of high school. They may well have achieved lower results than they hoped or expected and enrolled in the BA because of its low entry point. The adventitious nature of their enrolment in the BA contributes to their low levels of motivation, and their final results reflect a low level of engagement. They are simply enrolled to pass and report more negatively on every student success factor than any other cluster (independent learning, preparedness, fit, confidence and motivation). They also feel less supported by the university and their families than the 'Coasters' or 'Fight or Flight' students. A lack of perceived support has significant negative effects on student motivation and engagement (Descals-Tomás et al., 2021)

This cluster reports the highest levels of social isolation at university, which may be a result of their long commute times, their lack of motivation, and/or their moderate financial insecurity. One student reports of his commute to university: 'I don't have a lot of time to explore or socialize with friends. Commuting so far 3 days a week (3 hours each way) leaves very little time for study and a job' (Male, 19). These students have the second longest commute time to university, making attendance more difficult than those who form the Coasters and the Passionates. It is likely that these students, just like those who form the Coasters, attend classes strategically. They are also likely to be the students who hand in a bare minimum of assessment. Taylor & Mitra (2021) contend that extended commute times impact students' ability to succeed, so although this group perform at the lower end of the spectrum, their overall results are still in the mid-C grade range, demonstrating that despite their extreme disengagement, they are actually capable students who may just be distracted by competing demands (Brint and Cantwell, 2014).

The 'Passionates' (n=171)

Those who form the 'Passionates' are the highest achievers, receiving an average low-B grade (71.6%). This is the largest cohort of BA students, making up almost 42% of students. Factors that contribute to their success include shorter commute times (Taylor & Mitra, 2021), high levels

of financial security (Devlin & McKay, 2018), and feelings of preparedness and integration. Despite their confidence and success, these students do not feel supported by either the university or their families, reporting the lowest levels of all clusters in these two categories.
The success achieved by this cohort, paired with their reported low levels of support indicate that this cohort has chosen to enroll in their degree irrespective of what others might think (James et al., 2021). It may well be the case that this group of students could have enrolled in a degree with a higher entrance score, but chose not to, which disappointed their parents. This would also indicate that this cohort has an aptitude for their studies, explaining their higher results. Their higher results can also be attributed to their higher levels of motivation and engagement in their studies (Bruinsma, 2004). Feelings of preparedness would also have contributed to this cohort's relatively higher success rate, following the findings of Bandura (1997). This group of students set higher expectations for themselves than those in other clusters, and it may also be that they set higher expectations for others, further explaining their feeling that they are unsupported by their families and the university.

The Passionates expressed a desire to pursue their passion and enjoy the creativity and flexibility of the BA (James et al., 2021). One Passionate student wrote, 'part of my decision to undertake an arts degree was based on having new and exciting experiences – meeting new people, gaining a new independence and generally expanding my horizons' (Female, 19). Passionate students are generally positive about their abilities, and are more confident and motivated than those in any of the other clusters. Some of their positivity may be influenced by the fact that they can focus more concertedly on their studies than other students, having the highest levels of financial security. However, their high levels of self-reported confidence, preparedness, capacity for independent learning and belief that they fit at university are also likely to influence their positivity. This is backed up by studies such as O'Brien and Blue (2018), which examines positivity in pedagogical contexts and how feeling supported and having confidence results in positive feelings about education.

The 'Fight or Flights' (n=63)

For the 'Fight or Flight' cluster, the BA is a challenge that they will either rise to, or that will defeat them, and, for this reason, the group has been named the 'Fight or Flights'. Fight or Flight students receive the lowest marks on average (with a mean of 64.0%), but interestingly this does not accurately reflect the achievement levels of the majority of the cohort, who tend to either excel or fail. The final results of this cluster are split between very low grades and high grades. More than half of the cohort received a B grade (70%+), or higher, with nearly 20% of the cohort receiving an A grade (80%+). However, almost one quarter of these students fail, receiving a grade of less than 50%, with nearly 20% of students receiving a fail of 44% or lower. This is probably due to that fact that, despite the challenges these students face, they are the most highly motivated and driven to excel. Halvorson (2016) found that motivation can directly and indirectly improve performance. Urban and Jirsakova (2022) comment that non-traditional students are more likely to be motivated by intrinsic motivators such as a sense of pleasure and self-fulfilment from the experience of learning (2022, p. 153). Such intrinsic motivators have been found to have a more positive impact on learning experiences and outcomes (Schmidt et al, 2014). However, Schmidt et al also found that negative experiences relating to others' expectations or support can in fact

serve as an extrinsic motivator for students. In their study, the expectations or judgement of others were found to be important especially for students in the transition years of their education and it is likely that this was also occurring for our cohort. As O'Shea et al. (2018) suggest, first in family students often understand attending university not only as the culmination of their own ambition but for their entire family, leading to high motivation to succeed.

The performance of the 'Fight or Flight' cohort forms an apt reminder of Nelson's (2018) identification of the danger of 'false empowerment' in higher education. This cohort reported the lowest levels of financial security, one student reporting that they 'often have no money at the end of the fortnight and just make do with free food' (Male, 23), and another saying, 'I find it hard to live off the amount of money I earn' (Female, 18). This cluster also had the longest commute to university. Both financial security (Devlin & McKay, 2018) and extended commute times (Taylor & Mitra, 2021) impact on one's ability to succeed and many of the students in this cluster are the most at-risk students enrolled in the degree as a result of their personal circumstances. There are more female students (75%) in this cluster than in any other. Of the total student cohort across all four clusters, approximately two thirds are female. This cohort also consisted of students from more ethnically diverse backgrounds; in other clusters, between 28% and 34% of students are from backgrounds other than Australian, but in cluster four 43% of students are from non-Australian backgrounds. These students are also the least likely to have a parent who attended university, with 57% reporting that they are the first in their family to attend university. It is unlikely that mere 'willpower' will be sufficient to overcome these circumstances, and, as Nelson argues, they may be paradoxically disempowered by a suggestion that their success is entirely within their hands (2018).

Our survey asked students about paid work, but we did not find that these results correlated strongly with other measures of achievement or engagement. This conforms to findings of a study lead by Larcombe (2016) which found that – at least when under 20 hours per week – paid work does not appear to have a significant impact on student success. Unpaid care work, on the other hand, does appear to have significant impact on student performance, tending to place pressure on student time which negatively affects their results (Larcombe et al., 2016).

Limitations and Further Research

This typology is generated from self-reported data, which presents obvious potential challenges in terms of the objectivity of the student responses. However, we sought to limit the skewing of the data in this way through the delivery of the survey, which was administered as part of supportive and engaged all-class discussions about university study and the transition to university learning. Furthermore, the strong statistical significance of our clusters in predicting end grades in the subject suggests that the reliability of this self-reported data was high.

Many recent studies have identified financial insecurity as contributing to student success and retention (Baik et al., 2015; Quadlin and Rudel, 2015; Harvey et al., 2017). Based on the self-assessed financial security of the participants, our typology shows that our most financially secure type performs on average the highest in final grade, with the three other clusters conforming to this trend in descending order. That is, the more financially secure the cluster to which a student belongs, the better they can be expected to perform at university. This factor seems to be of

particular relevance to the ‘Fight or Flight’ cluster: arguably the student type that is both most at risk and most capable of improved performance. Given that the impact of the COVID pandemic on higher education is likely to exacerbate the impacts of inequality on the sector (O’Shea, Koshy and Drane 2021), further research is needed to determine if student poverty is as widespread and impactful as these results indicate, and – if so – what can be done to address this issue.

Care work is also a factor relevant to student success which merits further investigation based on our analysis. A limitation of our survey was that it neglected to inquire about care and other unpaid work, and further investigation of how these factors relate to our typology could be of benefit. Care work is particularly likely to be relevant to the ‘Fight or Flight’ student type, as this type was both most likely to be female and most likely to indicate that they came from an overseas background. Unpaid care work tends to be highly gendered in Australia (WGEA, 2016), and young migrants – particularly young women – are more likely than other young people to be engaged in family duties (Centre for Migrant Youth, 2012). Future research should address this limitation by engaging with unpaid work and family duties with as much attention, if not more, than that addressed to paid work.

Due to the methodological tools chosen for the generation of this typology, we were committed to the use of a large dataset. For this reason, we were not able to use the data generated from four regional campuses at the same time. Other researchers have found methods which allow for the generation of a typology from a much smaller dataset (Jenert et al., 2016) and it would be highly enlightening to test some of these methods against our regional datasets. Regional students experience different challenges in adapting to university life (Beer & Lawson, 2016), and in the Australian context have been found to experience lower engagement and completion rates to their metropolitan counterparts (Department of Education and Training, 2014). The inability of this study to engage with the section of our dataset which could illuminate this experience is a limitation that should be addressed by future research.

Conclusion

The strong statistical significance of the typology generated ($p<0.01$) in predicting final grade indicates that the model of typology applied in this case is conceptually appropriate to the diverse first year student cohort. Our analysis shows that student mindset on commencing university, in conjunction with feelings of preparedness and access to both financial and social support, is a strong predictor of student success. We contend that identifying students through similar processes of survey or observation can allow educators to tailor specific early intervention measures to different student types, resulting in better final grades. Considering student mindset and circumstances through the means of a typology offers educators and policy-makers a more nuanced and relevant means of understanding diverse student cohorts and offers the opportunity to better support students through targeted interventions based on predicted needs.

Supporting the success of diverse student cohorts as they transition to tertiary study is a challenge faced by universities globally. Having knowledge of student type based on a cluster analysis such as the one presented here could allow educators to better assess the needs of students upon commencement of their degree. When considered in combination with demographic information such as first in family status and quantitative data regarding commute times, this typology

demonstrates how self-reported measures of motivation, support and preparedness are important factors in predicting the final results of students. This means that assessing a student's motivations for study and feelings of preparedness and support upon arrival can allow universities to tailor transition programs to each student type, hopefully resulting in overall less attrition and higher levels of student achievement across whole cohorts. Below are some suggestions for how each cluster might be targeted upon entry to their degrees to enhance the opportunity for success.

The 'Coasters' may achieve greater success if they were more actively engaged in their studies and university life; taking their complacency and turning it into passion. Because these students feel well supported and experience fewer internal and external pressures than those in other clusters, increasing their motivation levels and drive to excel would be best achieved through in-class engagement techniques. Coasters would benefit from being partners in their own learning, designing learning activites that empower them to draw on their interests and increase their motivation to learn (Weimer 2002). Because they are content in other aspects of their lives, drawing out their passions as part of classroom discussion and connecting these to career values, pathways and services should increase motivation levels and help them to feel more investment in the value of their studies (Jackson and Tomlinson 2019). Student retention is closely linked to a sense of belonging, so incentivized class attendance would ensure these students came onto campus more often and had more opportunity to connect with their peers and engage more deeply in their studies (Morrow and Ackermann, 2012; O'Keeffe, 2013).

The challenge teachers' face when presented with a 'Reluctant' student is their very low confidence and motivation levels. Nelson and Creagh (2013) argue that identifying disengaged students in the first year of their studies allows educators to intervene in targeted ways that are likely to lead to better student outcomes. The lack of motivation experienced by Reluctants could be addressed by employing many of the same techniques used to engage the Coasters, discussed above. Further emphasis on the value of their studies, career counselling, and academic advising might also be required to turn any negativity into positivity and transform their reluctance to participate into a determination to succeed. Self-belief is central to motivation, so providing opportunities to succeed early and build confidence in their abilities would enhance this cluster's chances of success. Early assessment has been found to lead to positive changes in students attitudes to their studies and to adaptations of learning methods when they can see a correlation between undertaking the learning activities set and their ultimate success in the subject (van Schalkwyk et al. 2012), so setting an achievable and well supported early assessment task is likely to increase motivation levels.

In order to achieve further success, 'Passionate' students do not require as much intervention as 'Coasters' and 'Reluctants'. Rather, the key with this cluster is to keep them engaged and enthusiastic in a classroom of students who do not necessarily share their passions. Key to the success of 'Passionate' students is empowerment, which facilitates the student taking ownership of their studies and partnering in their own learning, which would also benefit Coasters as discussed above (Bovill, et al. 2011). Extra and co-curricula experiences and opportunities should be presented to this cluster to sate their interests and extend them academically (King et al. 2021). The stigma associated with their degree choice could be addressed through engagement in alumni mentoring programs or internship opportunities that demonstrate the real world demand for the skills they are learning in their degree. Targeted invitations to participate should also

address their belief that the university does not support them. It is important these students receive the intellectual stimulation they crave and that they are not overlooked because they seem to need less intervention than those who make up the other three clusters.

'Fight or Flight' students make up the smallest cluster, consisting of just over 15% of the whole cohort. However, this cluster comprises the most at-risk students, so bears significant attention. Also, because it is a group of highly motivated students who experience challenges that can be practically managed, it may also be the cohort where the most gains can be achieved with focused attention. Although the decision to persist with one's studies or abandon them among first generation students is a result of external influences, including the opinions of family and friends (Stuart, 2006; Foster et al., 2011, 15), universities still have a role to play in this decision and could do more to foster social integration so that university peers can encourage these students to persevere with their studies. Kuh argues that engagement in learning activities 'helps level the playing field, especially for students from low-income family backgrounds and others who have been historically underserved' (2009, 689). Following this contention, the students in this cluster who engage with their studies do well. However, those who disengage end up dropping out, explaining the lower overall average final result. To succeed, these students need to feel included and supported so that they can maintain their motivation to participate and succeed. However, time-poor students need to be predominately supported through curriculum because they are less likely to access additional services due to their circumstances. Engaging with Transition Pegagogy (Krift et al. 2010) to ensure equitable access to services that will support at risk students will improve the chance for this cluster to succeed.

Identifying students' mindset early in their studies using a typology, and analyzing this in combination with measures of student diversity like first-in-family that have been shown to be a significant determining factor in future success, could allow universities to direct appropriate support to each student. This information can be combined with pedagogical and institutional knowledge to provide the optimal support for individual students entering with different levels of preparation. Ultimately, this is likely to lead to improvements in student success and retention rates. This article has demonstrated that it is not demographics alone that are crucial to understanding diverse student cohorts and the first-year experience, but that understanding a student's mindset, motivation, preparedness and feelings of support upon commencement at university can give educators the information they need to intervene early and in targeted ways that can lead to overall better student participation and success.

Conflict of Interest

The author(s) disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university.

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