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Choice matters: an investigation of students' experiences selecting dissertation projects

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Abstract

The final year dissertation is an important part of an undergraduate degree which delivers a wide range of subject-specific and transferable skills. It plays a significant part in students' learning development and overall experience of university. Finding the right project is emotionally important to students and may underpin their subsequent motivation and engagement. Little is known, however, about how students make this important choice. This study aimed to learn more about students' experiences of choosing a dissertation, how their choice processes varied and whether their choices worked out well for them. It surveyed 150 undergraduates in natural sciences at a UK university, asking a mix of qualitative and quantitative questions. Findings indicate that students value a range of factors when choosing their dissertation, most prominently interest in the subject and approach but also their existing familiarity with the area, the perceived benefits and demands of the work and staff support. Multivariate analysis suggests a variety of choice processes are in operation, with some students valuing content factors and others trading these off against relational ones. With hindsight, 91 respondents (60.7%) felt their choice process had worked well and 87 (58%) would choose the same way again. A subset, however, had felt unprepared to choose, and some of these were particularly unhappy with the outcome. The implication for learning development is that helping students learn to make conscious and informed choices and making dissertation modules student-centric is likely to significantly improve engagement and learning, especially for the less confident.

Keywords: self-efficacy; engagement; motivation; final-year project.

Introduction

The final year dissertation (also called a research or honours project) is the capstone part of undergraduate degrees around the world (Healey et al., 2013). Completing such a

project, or undertaking equivalent 'research experience', is thought to be key to students' development of transferable and subject-specific skills and gaining entry to their disciplinary communities (Greenbank et al., 2008; Wilson et al., 2012; Feather, Anchor and Cowton, 2014). Dissertations are widely considered critical tests of graduate skills and abilities, '[a]mong the most telling of all indicators of the quality of educational outcomes' (Gibbs, 2010, p.48). Performance on a dissertation, which tends to be highly weighted, can determine degree classification. The experience of actually doing a dissertation is also likely to have a significant effect on students' current and subsequent learning development.

In many ways, conducting a dissertation can be seen as the epitome of active or inquiry-based learning, building on the principle that students should be producing as well as consuming knowledge (Healey et al., 2012). Students, however, have not mentioned 'contributing to science' when asked about why they value doing research, and many consider their work irrelevant to wider notions of progress (van Blankenstein et al., 2019, p.221). Instead, students report that they are more likely to engage with research, and persevere through difficulties, when they are emotionally and personally engaged with it – that is, when they find their work personally meaningful, experience positive interdependencies and relationships with others, feel welcome and safe in their research environment and enjoy their daily tasks (Dewey, 1916; Cooper et al., 2019; van Blankenstein et al., 2019, p.222).

With staff still believing dissertations matter primarily because they deliver advanced skills and offer exposure to and entry into research, as well as helping to recruit and retain the best students (Wilson et al., 2012), there is a clear mismatch between what academics and students value about these capstone experiences. Staff may also feel that dissertations should only be offered to more academically-inclined students, as others 'haven't got the motivation' or 'don't have those core competencies and skills at dissertation level' (Feather, Anchor and Cowton, 2014, p. 19). Motivation and performance, however, are interdependent in complex ways (Honicke and Broadbent, 2016). Recent research into the links between personality, academic motivation and performance further suggests that self-efficacy beliefs and academic integration are important mediators of the motivation-performance relationship (Bipp, Steinmayr and Spinath, 2008; Clark and Schroth, 2010; de Feyter et al., 2012; Clark et al., 2014; McGeown et al., 2014; Honicke and Broadbent, 2016). This suggests that the emotional

dimensions of engagement (Fredricks, Blumenfeld and Paris, 2004; Henrie, Halverson and Graham, 2015) may be particularly important to student experiences of dissertation modules, and ultimately their development as independent learners and graduates.
One approach to making dissertations more personally relevant for students is to offer them choice: of topic, approach, study subject(s) (if relevant) or supervisor, or all of the above. While it is theoretically possible to assign students pre-designed projects with no element of choice, most departments allow some choice within a framework, and some allow students to design their own dissertations from scratch provided they can find or be allocated a suitable supervisor (Harland, Pitt and Saunders, 2005, p.2). A few even use electronic matching systems to allocate students one of their chosen projects, reducing the demands on staff (Hussain et al., 2019, p.3).

It would be easy to assume that offering as much choice as possible will increase students' feelings of ownership and therefore their engagement and motivation, but the reality seems to be more complicated (Milner-Bolotin, 2001). Milner-Bolotin's (2001, p.ix) work, for example, found that the level of autonomy students had when choosing a project was not meaningfully related to either ownership or mastery goal orientation, but their initial interest in the project was. In contrast, a more recent study has found that students given a high degree of autonomy and choice tend to use more phrases linked to positive feelings of ownership, while those with no choice expressed negative ideas of ownership more often (Hanauer et al., 2017). A third study found considerable variation in students' self-reported propensities to choose and work autonomously (Greenbank and Penketh, 2009, p.466-467). Greenbank and Penketh (2009, p.466) also found that the student-supervisor relationship was key to developing independence, and that students reported a tension between choosing a project based on interest and one they felt would attract more academic support. This fits with other studies that note that this relationship is both critical and challenging to navigate (Shadforth and Harvey, 2003; Derounian, 2011), especially in its distinctive combination of the intellectual and the emotional (Strandler et al., 2014).

The findings above suggest that choice can be a mixed blessing, but there has been very little research into *how* undergraduate students make choices within their degrees, including about their dissertation (Harland, Pitt and Saunders, 2005, p.1). Student perceptions of their own skill and assessments of supervisory availability seem to be important in deciding to do a project, where this is optional (Sellahewa and Samarasinghe, 2021, pp.139-141). Researchers who surveyed two cohorts doing dissertations in

Biomolecular sciences found these students identified their general interest in the subject area as the most important factor in their choices, followed in turn by the chance to extend knowledge in a familiar area and timing of practical work (Harland, Pitt and Saunders, 2005, p.7). Some of the factors Harland, Pitt and Saunders (2005) included, however, would not generalise to other subject areas, and there has not yet been any follow-up research exploring student choice in a contemporary (post-Covid-19) setting. Given the major changes to student body size and diversity, the type(s) and topics of dissertations universities can support and the lived student experience in the last few years, this study aims to revisit this important topic. It asks three specific questions:

1. How do students choose their dissertation projects, and which factor(s) and values do they prioritise or trade-off when doing so?
2. Do the factors influencing student choice differ between cohorts of students who have experienced different approaches to project allocation?
3. Do students' choice processes work well for them, and if not, what would they change or value differently with hindsight?

Method

Research context and recruitment of participants

This study was carried out in a mid-sized UK university with a diverse student body. Student respondents were recruited from degree programmes in the natural sciences, broadly defined to include Biology, Zoology, Conservation, Geography, Environmental Science and Ecology. Participation was entirely voluntary, with students given a detailed explanation of the topic and purpose of the survey and how the data would be used before opting in. Survey responses were collected electronically and participants remained anonymous throughout.

In lieu of collecting identifying information, participants were asked to specify whether they were in year two or year three of their degree, and which broad group of programmes (Biosciences or Environmental subjects) they were studying within. Responses were solicited from three cohorts of students, namely second year Biosciences students (n=58 participants from a cohort of approximately 180), third year Biosciences students (n=66 from approximately 160) and third year Environmental Sciences students (n=26, from

approximately 75). This lack of identifying information also meant it was not possible to explore respondent demographics. The cohorts surveyed, however, were all broadly representative of the university's student body in terms of, for instance, gender, ethnicity, and proportion of first-generation students. The survey was administered in class time to ensure everyone had an equal opportunity to fill it out and ask any questions they might have.

Responses were collected between March and April 2022. At this time, the second year cohort had just submitted their dissertation research proposal, while both third year cohorts were writing up. Biosciences and Environmental Sciences students had also experienced different dissertation allocation/choice procedures. In this university, Bioscience students select pre-designed projects from a list and are allocated one of their six ranked choices, while Environmental Sciences students choose a subject area and negotiate their project with the assigned supervisor.

Survey design

This study used a mixed-methods approach and a survey that combined qualitative and quantitative questions. First, it asked students to summarise in their own words the factors influencing their dissertation choice. The next six questions asked students to rank the importance of a particular (pre-set) factor (Table 1). Rankings used a five-point Likert scale with 1 indicating 'not important at all' and 5 'extremely important'. These closed questions followed the open-ended one so we could see to what extent students' own listings of factors matched those identified in advance by the survey writers. Together, they provided the data we used to explore research questions one and two. Finally, students answered two semi-qualitative questions about how well their choice process had worked and what (if anything) they would change with hindsight, which provided evidence to explore research question three. These semi-qualitative questions each included multiple choice options (yes, no and somewhat) and an 'other – explain below' option.

Table 1. The six pre-determined factors students were asked to rank from 1 (not at all important) to 5 (extremely important).

Factor name	Description (as given in the survey), as in 'how important was it to you that your chosen project…'
Theme/subject	Fitted within a certain theme or subject area, for example, conservation, animal behaviour or microbiology
Approach	Used a particular approach, for example, was field-based, lab-based or desk-based
Specific group/environment	Focused on a specific taxonomic group or a particular environment
Supervisor	Would allow you to work with a particular supervisor
Skills	Would develop specific skills, for example, in conservation assessment, using a questionnaire, GIS (Geographical Information Systems) or DNA extraction
Autonomy	Would allow you to design a project based around your own interests

Data analysis

Quantitative data was analysed in Microsoft Excel and IBM SPSS version 27. Descriptive statistics and boxplots were generated to summarise scores for each factor within and between cohorts, and pairwise Mood's Median tests with Bonferroni corrections were used to test for statistically significant differences between the three cohorts. Mood's Median test was appropriate because the samples, particularly the third year Environmental Sciences group (n=26), did not meet the assumptions of a parametric test (Mood, 1950). Bonferroni corrections were used to reduce the risk of Type I error that arises when conducting repeated pairwise tests of difference (Bland and Altman, 1995).

To address more fully the element of research question (1) above that focuses on trade-offs and patterning in rankings, principal components analyses were then conducted on the rankings for all six factors, first for the entire study sample and then for the three student cohorts individually.

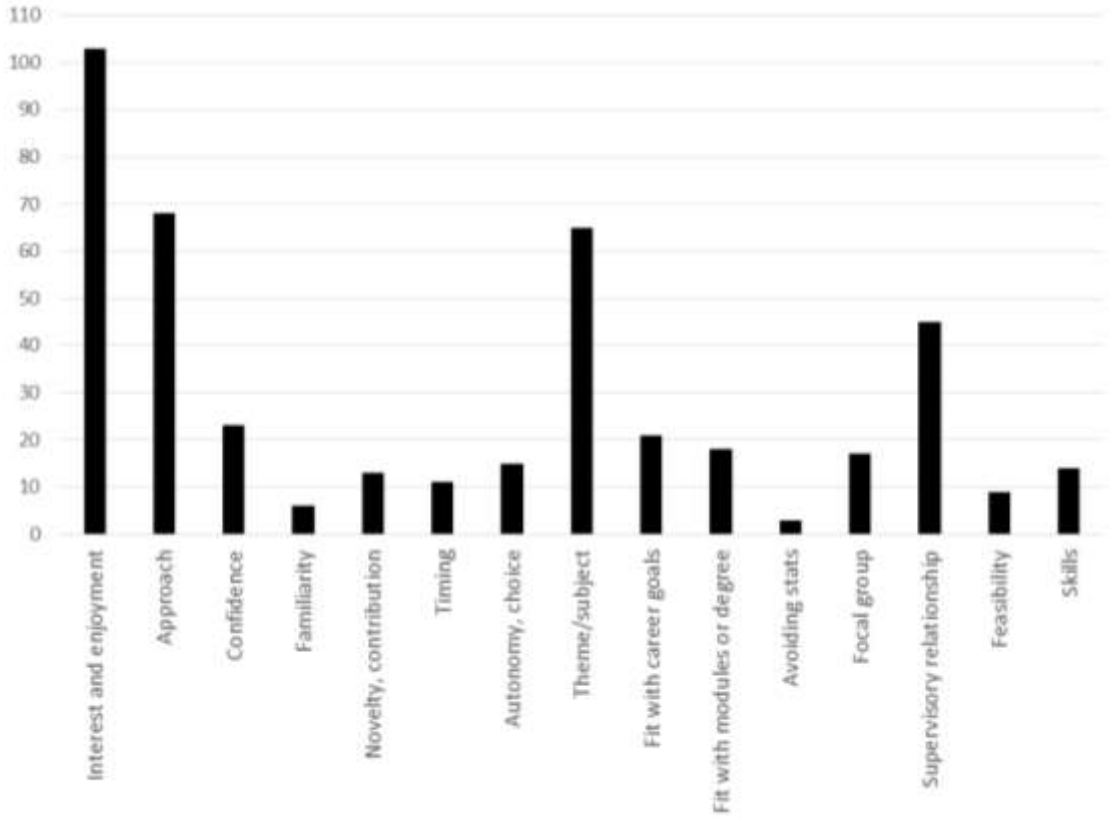
Qualitative and semi-qualitative data, which included that for all the remaining questions in the survey, were analysed thematically (Kiger and Varpio, 2020). For semi-qualitative questions, where respondents could answer yes, no, somewhat or 'other – please explain', responses were first categorised as broadly affirmative (yes or variations on 'mostly'), broadly dissenting (no or 'a little bit'), and somewhat. If a respondent did not answer the question the response was removed. After proportions in each category had been calculated, simple yes/no responses were set aside, and the remaining answers were coded and classified into a set of themes (the inductive approach to thematic analysis). Thematic analysis was also used for the initial wholly qualitative question, with a mixture of inductive and deductive themes used to accommodate both expected and emergent/unexpected content. Mentions of each theme were counted and converted to proportions in Microsoft Excel.

Results

How students choose dissertations

Our survey's first question asked participants to describe in their own words which factor(s) had been important to them when choosing their dissertation. Most respondents listed at least two factors and the answers clustered around fifteen themes. The most commonly mentioned theme was 'interest or enjoyment', which 103 of 150 respondents (68.67%) had considered (see Figure 1). The second and third most popular were theme or subject matter and approach respectively, which were often mentioned alongside interest/enjoyment, for example, 'interesting subject matter' or 'data collection that I would enjoy'. Approach was mentioned by 68 respondents (45.33%) and theme/subject matter by 65 (43.33%). Supervisor was the fourth most common factor, mentioned by 45 respondents (30%).

Figure 1. Themes mentioned by survey respondents asked to summarise in their own words what was important when they choose their dissertation.

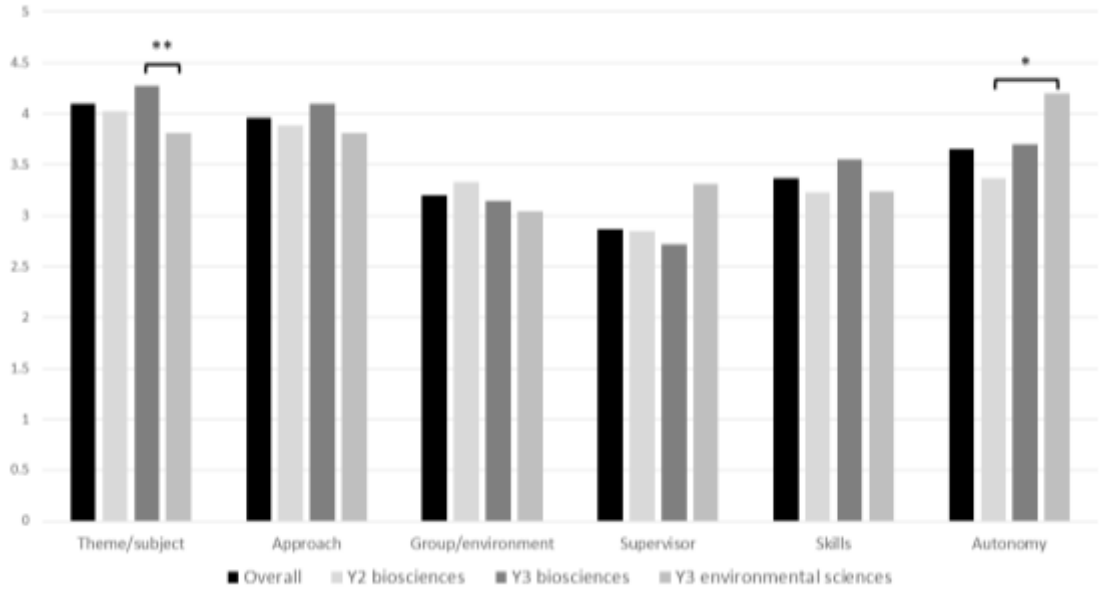


These top four themes were anticipated in the survey design. Interest, however, was not included in the quantitative questions because of its anticipated close relationship to theme/subject, approach and focal group/environment. The other themes mentioned in qualitative responses (Figure 1), however, included a mix of anticipated and emergent ideas. Emergent themes included confidence (whether the student anticipated being able to do the project well or that it would be difficult), familiarity with the subject and approach, being able to make a contribution or study something new, timing, fit with career goals, fit with other modules or degree specialism, a desire to avoid statistics (mentioned by 3 respondents) and the perceived feasibility of the project, for example, which resources a student could devote to the dissertation, including whether they drove.

The quantitative rankings of how important a subset of pre-identified factors were to each group reinforced the importance of theme/subject and approach (see Figure 2), which had the highest mean importance rankings at 4.09 and 3.96 out of 5 respectively. The third most important factor according to the weightings, however, was autonomy/choice, though

the average here was 3.65 out of 5, closer to the mid-point of the five-point Likert scale and indicating an average score somewhere between 'neither important nor unimportant' and 'rather important'.

Figure 2. The mean weightings given to six potentially important factors in choosing a dissertation according to each student cohort surveyed. Statistically significant differences are labelled (* = p<0.05, ** = p<0.01).

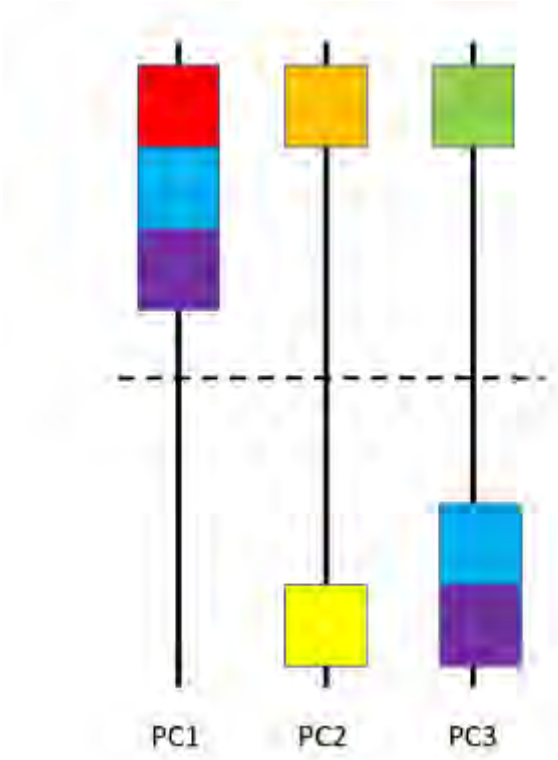


Skills to be gained and the focal group/environment of a proposed dissertation both scored between 3 and 3.5, and supervisor (which had been the fourth most commonly mentioned important factor in the qualitative data) scored just 2.87 overall, effectively a 'neither important nor unimportant' score. Looking more closely at the rankings for supervisor, however, reveals a bimodal pattern with some respondents (the largest share, at 37/150 or 24.3%) saying supervisor identity was 'rather unimportant' to them while 35 respondents (23%) said it was 'rather important'. There were few significant differences between student cohorts. Third year Biosciences students scored theme/subject as significantly more important than third year Environmental Sciences students (X=7.961, p=0.005) and third year Environmental Sciences students scored autonomy/choice as significantly more important than second year Biosciences students (X=6.392, p=0.034).

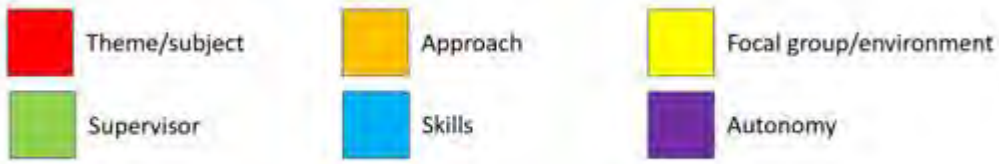
Trade-offs and patterns in ranking of key factors

This study has shown that students consider multiple factors when choosing a dissertation. It also suggested that students had made their choices using several different sets of values, for instance when it comes to supervisor, theme/subject and autonomy, which some students valued and others did not. Are students trading off some factors against one another, and are there broad 'types' of choice process resulting in clustered scoring patterns? To find out, we ran a principal components analysis on the scores for all six factors.

Figure 3. Factors linked and traded off along the three most important principal components summarising our quantitative dataset.



Key



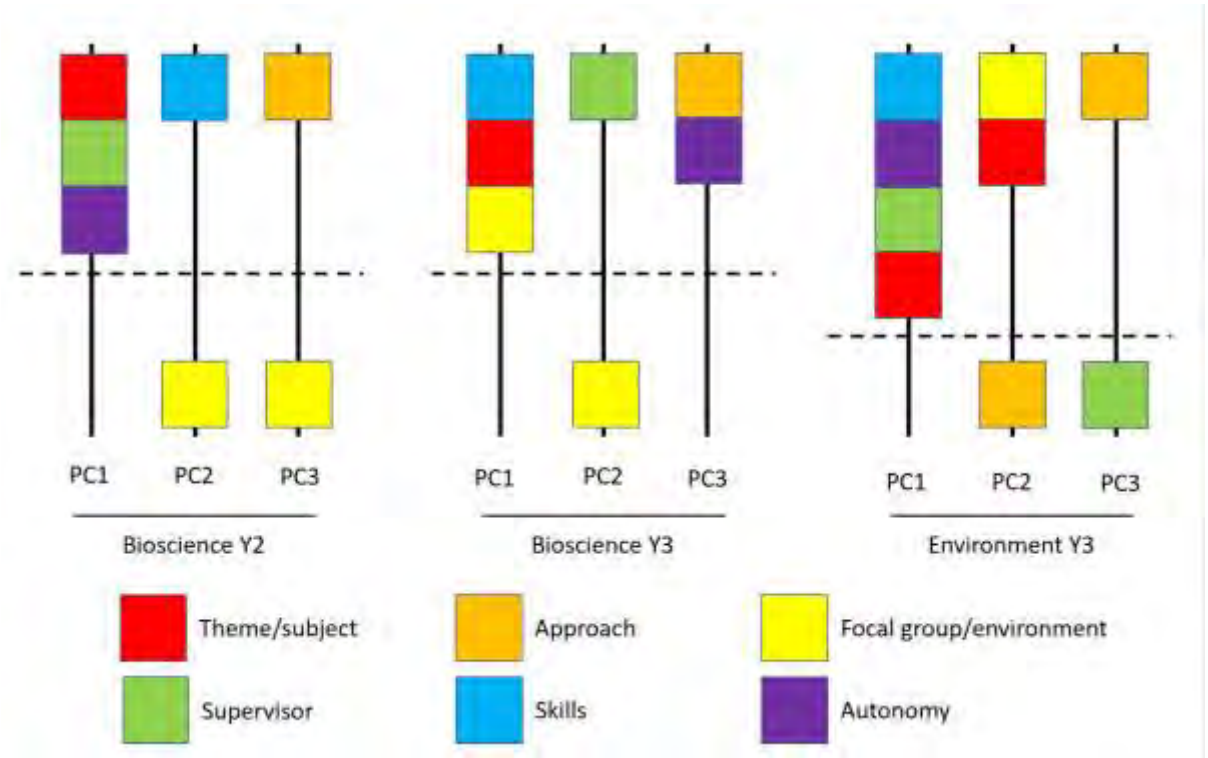
Red = theme/subject, blue = skills, purple = autonomy/choice, orange = approach, yellow = focal group/environment, green = supervisor.

Factors appearing on the same side of the central dashed line have positively correlated scores, while those on opposite sides are traded off against one another (negatively correlated). The components are statistically independent. When all respondents are included, principal components analysis identifies three combined factors, each independent of one another, that together explain 62.7% of total variation. Principal component one (PC1) explains 29.3% of the variation in the dataset, and shows that students who score theme/subject highly will also tend to value the skills a project develops and autonomy/choice. PC2, which explains 17.1% of variation, suggests students value either approach or the chance to focus on a particular group, species or environment of interest, and perhaps trade these off against one another. Finally, PC3 explains a further 16.2% of variation and suggests another trade-off, with students who score supervisor highly tending to score autonomy and skills as unimportant, and vice-versa (see Figure 3).

The three student cohorts scored a few factors differently to one another, so principal components analyses were also conducted for each cohort individually. The results (Figure 4) suggest some minor differences between cohorts in terms of trade-offs and values. Second year Biosciences students, for instance, tended to score theme/subject, supervisor and autonomy/choice similarly, then traded off skills against focal group/environment and approach against focal group/environment (suggesting they valued either focal group/environment or skills and/or approach, but not other combinations). Third year Biosciences students scored theme/subject, skills and focal group/environment similarly, and traded off supervisor versus focal group. They also tended to score autonomy/choice and approach together, and independently of other factors. Finally, third year Environmental Sciences students (who had experienced a more open-ended allocation process, with more scope to negotiate their own project) scored theme/subject, skills, autonomy/choice and supervisor together, then traded off theme/subject and focal group/environment against approach. They also traded off approach against supervisor. These differences may relate to the different project allocation processes the cohorts experienced or their different priorities.

Figure 4. Factors linked and traded off along the three major principal components found in analyses of just second year Biosciences students (left), third year

Biosciences students (centre) and third year Environmental Sciences students (right). Colours and interpretation as for Figure 3.



Red = theme/subject, blue = skills, purple = autonomy/choice, orange = approach, yellow = focal group/environment, green = supervisor.

Self-assessment of the choice process

The majority of respondents (91, or 60.7%) said their choice process had worked well for them, while 23 (15.3%) said they had not and 36 (24%) said they had worked 'somewhat well'. To categorise qualitative responses (some respondents had not ticked an option before choosing the text box labelled 'please explain') the overall emotional tenor of the text was used, for example, if a student mentioned 'getting my third choice, so I am not happy' this was categorised as negative, while 'I got to design my own project' was positive. Most responses (119 or 79.3%) were simple, selected from the multi-choice options.

Qualitative responses were generally unique, but included eight mentions of getting a lower-ranked choice (all Biosciences students, who chose projects from a list of adverts). Seven respondents mentioned being happier than expected, while five said their preferred focal group/environment was not available, and five mentioned changing their project later.

There were four mentions each of finding a project less relevant than expected and lacking confidence to complete a chosen project.

A slightly smaller majority (87 respondents or 58%) said that with hindsight they would use the same criteria and choice process again, while 38 (25.33%) said they would change their process and 24 (16%) had mixed feelings. Three respondents did not answer the question or considered it 'not applicable'. Among the 74 (49.33%) qualitative responses the most common themes were that a student repeating this choice would focus more on approach (18 respondents or 24.32%), or the theme or subject matter (14 respondents, 18.92%). Ten (13.51%) used the text box to express contentment while 6 (8.11%) expressed generalised dissatisfaction.

Changing to designing one's own project and changing to *not* designing one's own project were both mentioned, and four students said they had had too little information to choose effectively. Three more mentioned asking for more information or help choosing, with one saying they 'didn't know which [approach] you were going to get' and another that the allocation 'feels like pot luck'. Two mentioned second year being 'too early' to know how to choose or choose well.

Discussion

This study's findings corroborate and expand upon those already published. Respondents named interest in a dissertation's subject as an important factor more often than any other single factor. This aligns with existing evidence that interest determines students' feelings of ownership and motivation (Milner-Bolotin, 2001). Likewise, subject/theme was given the highest quantitative importance ranking by the whole sample and the two Biosciences cohorts. For third year Environmental Sciences students, however, approach was scored the same as theme/subject and autonomy/choice higher. The differences between environmental scientists and other cohorts in score for theme/subject and autonomy were statistically significant (see Figure 2). They may relate to the fact that Biosciences students chose from project adverts written by staff, and thus placed more emphasis on the information given (about theme/subject, question and approach), while Environmental Sciences students pick a theme and negotiate their project with a supervisor. The latter cohort therefore have more opportunity to experience and appreciate autonomy.

Harland, Pitt and Saunders (2005, p.7)'s Biomolecular science students also considered interest in the subject the most important factor in dissertation choice, followed by the chance to extend knowledge in a familiar area and timing. This survey did not ask for rankings of familiarity or timing, but both emerged as minor themes in qualitative responses (mentioned by six and ten respondents respectively).

Contributing to science also emerged as a minor theme, mentioned by 13 respondents, and here there was an interesting skew: seven of 13 (53.84%) were environmental scientists, even though these made up only 17.33% of respondents. In contrast, mentions of wanting a familiar subject and needing to feel confident (23 respondents) were evenly spread across cohorts. Timing was mostly mentioned by Biosciences students, who were more likely to be working to fit around someone else's schedule. It seems that a few respondents were keen to generate new knowledge (contra van Blankenstein et al., 2019), but more were concerned with feeling confident. This fits with prior evidence that strong self-efficacy beliefs promote engagement, motivation and attainment (Honicke and Broadbent, 2016; Cooper et al., 2019; van Blankenstein et al., 2019).

An extremely subject-centred approach to dissertations, as opposed to a student-centred perspective, has been found to reduce opportunities for both students and staff development (Shadforth and Harvey, 2003, p.150). Our respondents clearly were not advocating for a wholly subject-centred approach, as is evident in the importance assigned to the supervisor by a substantial minority of students (30%) and in qualitative responses. Having a supportive supervisor and good relationships with others was mentioned both as a factor that made some students feel their choice process had worked and as something others would focus on if choosing again. The supervisory relationship, and feeling valued and encouraged as a learner, is clearly important (as found also by Derounian, 2011, p.96 and Strandler et al., 2014). Strong support networks involving peers, colleagues and supervisors are known to help with 'sense-making' and thereby coping with the emotional challenges of needing to try, fail and learn from failure as part of learning to do research (Krishnan, 2021).

Timing within the academic year has also been listed as important by students before (Harland, Pitt and Saunders, 2005, p.7). In this survey, furthermore, nine respondents mentioned 'feasibility' as important, though most did not explain further. Subsequent qualitative responses indicated that two students had experienced unforeseen practical or

financial constraints, one practical project been curtailed by the Covid-19 pandemic, and another three simply said their project did not deliver what they had hoped for. Several mentioned being underprepared to choose in second year, or feeling that the information given about projects was not what they needed (or, in one case, not accurate). One student said 'the choices feel a bit all over the place, so [you] definitely need some sort of criteria to sort through them. But feels like pot luck on which you get allocated', while another said '[t]here was too limited information on literature review, lab-based and field-based projects' so they had not known in advance what they would get.

With interest closely linked to intrinsic motivation (Milner-Bolotin, 2001; Clark et al., 2014; McGeown et al., 2014; van Blankenstein et al., 2019) and the dissertation representing a particularly challenging and potentially daunting module (Todd, Bannister and Clegg, 2000), this study thus reinforces the importance of designing dissertations to attract students' interest. Given prior evidence that academics' assessments of student priorities often do not match students' reports (Harland, Pitt and Saunders, 2005, p.8), further investigation into what interests today's higher education students might be a useful first step. This would need to be discipline- and context-specific, and could enable the kind of dialogic expression of the student voice that has been shown to lead to better student engagement (Sun and Holt, 2022). It would also allow students to start to co-create the values that structure their dissertation experiences (after Dollinger, Lodge and Coates, 2018). Furthermore, tailoring dissertation offerings to subjects and approaches students value might be possible even where resource or staff constraints mean a totally free choice of dissertation topic (meeting hopes of full autonomy) is not possible or desirable. We found only two statistically significant differences between the cohorts in their rankings of factors, which could have been a result of small sample sizes (particularly for Environmental Sciences students, n=26). The study was also limited in that it focused solely on natural science students. Future work might fill some remaining gaps, but an interdisciplinary survey would need to be carefully designed to balance making questions relevant to all respondents with the need to gather meaningful information about student experiences and perceptions.

Our data shows diverse choice process in our student sample. Principal components analysis suggested students were either trading off factors against one another or possessed several different recurring sets of values. For instance, students who scored approach highly tended to give a low score to focal group/environment and vice-versa, and

there was a similar pattern for supervisor versus skills and autonomy. This fits with Greenbank and Penketh's (2009, p.467) finding that students felt torn between choosing a project of interest and one they felt would garner strong support from a supervisor. To our knowledge, this study is the first to go beyond exploring the importance of specific factors to students' dissertation choices to consider how they fit with one another and where there might be trade-offs and/or different value patterns.

A slim majority of our respondents said that they were content with their choice process and would choose the same way again. This leaves approximately 40% who either were unhappy with their choice process or had mixed feelings, and an equivalent group who would have changed it with hindsight. This study provides some insight into why there is this diversity of responses and suggests some ways forward. Firstly, as mentioned above, exploring student interests and exploiting the potential for co-creative approaches to dissertation module curricula is likely to lead to both greater student satisfaction (Elsharnouby, 2015) and more active engagement with and motivation for learning. Secondly, with a significant minority still feeling unequipped to choose well, more attention to scaffolding the choice process (including closing the feedback loop by introducing data on prior students' experiences) could empower students to reflect upon and own the opportunities for personal growth that their dissertation offers. In particular, we found a strong emphasis on personal values in our respondents' answers. This implies that encouraging students to see choosing their dissertation as both a personal and a professional process and framing the dissertation module as student-centric (after Shadforth and Harvey, 2003), might, in effect, give permission for students to consciously and independently explore their own preferences, needs, skills and aptitudes and eventually encourage them to direct their own learning development.

Conclusions

This study has shown that interest, particularly in the theme/subject matter and approach of a project, is both the most frequently mentioned and the most highly ranked factor influencing natural sciences students' choice of dissertation. It has also demonstrated diversity in the combinations of factors used to choose. Some students either valued different subsets of those studied or traded off one factor for another, for example, by accepting a project that focuses on a less preferred species to ensure they would work

with a supportive and engaged supervisor. The majority – but importantly not all – felt their choice process had worked well for them, but improvements could be made. Learning developers might want to consider how they provide sufficient, well-targeted information about students' options without overwhelming learners with possibilities they cannot yet imagine. Having a module lead actively scaffold the choice process is important because it makes space for students to engage emotionally, cognitively and behaviourally with their dissertation early on in the process. A focus on guided choice may also help staff ensure a dissertation module starts off centring students' development rather than their subject knowledge.

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