

Perceptions of subject difficulty and subject choices:

Are the two linked, and if so, how?



October 2017

Ofqual/17/6288

Author

This report was written by Benjamin M. P. Cuff, from Ofqual's Strategy, Risk and Research directorate.

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1 Executive summary

Debate about perceived disparity in the difficulty of different subjects has occurred over many years and this might be contributing to a lower uptake in certain 'key' subject areas. The purpose of this research was to explore whether teachers' and students' perceptions of subject difficulty might be having an effect on which subjects students choose to study in secondary education, and whether other concerns (eg subject enjoyment or usefulness) might interact with this relationship.

A qualitative research design was chosen to allow for an in-depth exploration of these issues. One-to-one interviews were held with 49 teachers and focus groups were held with 112 students, both from 12 schools across England. Thematic analysis was used to analyse the coded transcripts and the main drivers of students' and teachers' behaviours were identified.

In general, although subject difficulty was an important consideration for teachers, much of their advice was based upon what each student would enjoy and find useful for future education/employment. Teachers agreed that whether a student found a certain subject difficult or not was very much dependent upon each student's individual strengths (ie person-specific difficulty). Teachers had an influence over students' subject choices via the advice they gave, and school policies also had an effect. Entry criteria policies were often based upon general notions of subject difficulty, which served to prevent students from taking subjects they would find too difficult. Some schools also chose not to offer certain subjects because they were seen to be too difficult, again preventing uptake in those areas. Teachers sometimes discouraged students from taking subjects that might be too difficult for them, but stated that this was mostly (although not exclusively) done according to person-specific subject difficulty, as opposed to more general (ie not person-specific) notions of subject difficulty.

Similarly, students stated that perceptions of difficulty were not the main basis of their decisions, and focussed more upon enjoyment and usefulness. Importantly, students often stated that they were willing to overlook subject difficulty when they enjoyed it and/or needed it to satisfy their university or career ambitions. Students also agreed that although some subjects 'stood out' as seeming to be generally more difficult than others, whether or not they found a subject difficult was dependent upon their individual strengths. Students did base their subject choices on perceptions of difficulty, and recognised that they were also sometimes discouraged by their teachers, parents, and friends from choosing subjects that were thought to be too difficult for them.

The main conclusion drawn from this research was that subject choices appear to be primarily driven by a triad of perceptions: enjoyment, usefulness, and difficulty (with perceptions being mostly person-specific). Although perceptions of difficulty did have an influence on subject choices, they are perhaps the lesser of these three concerns.

2 Introduction

The issue of inter-subject comparability has been subject to longstanding debate in the education literature, as summarised in a series of working papers recently published by Ofqual (2015d). Although much work has been done to determine whether some subjects are statistically more difficult than others (Coe, 2008; Coe, Searle, Barmby, Jones, & Higgins, 2008; Nuttall, Backhouse, & Willmott, 1974; Ofqual, 2015e), consensus on the matter is yet to be reached, largely because of a lack of agreement over how to conceptualise inter-subject comparability in the context of assessment and awarding (Coe, 2010; Newton, 2010, 2012; Ofqual, 2015c). Given that a resolution is yet to be found, it is important to understand how the education system is currently being affected by this issue. In this paper I shall focus specifically on how students' subject choices (ie which subjects they choose to study at GCSE and A level) are currently being affected by the perceptions of difficulty held by those students and their teachers. Although this may bring us no closer to determining which subjects are **objectively** more difficult than others, people's choices and behaviours will nonetheless be primarily driven by what they **believe** to be true.

This research is particularly important in light of concerns expressed about national skills deficits in STEM¹ subjects and modern languages (eg CaSE, 2014; Dearing & King, 2006; House of Lords, 2006; Myers, 2006; Osborne, Simon, & Collins, 2003; Roberts, 2002; A. Smith, 2004; E. Smith, 2011). Specifically, there is the concern that fewer students may be entering into these fields because these subjects are generally perceived to be among the more difficult subjects², and that students may be choosing to study 'easy' subjects in favour of 'difficult' subjects, to maximise their chances of attaining high grades. However, although various sources have suggested that perceptions of difficulty (sometimes discussed in terms of the perceived likelihood of doing well in a subject) appear to have an influence on decision making (eg Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Brown, Brown, & Bibby, 2008; Jin, Muriel, & Sibieta, 2011; Tripney et al., 2010; Vidal Rodeiro, 2007; Watts & Pickering, 2005), there is a lack of research focussing specifically on these perceptions in depth. Accordingly, more work could be done to explore exactly how students and schools are behaving in response to their understanding of this issue.

Investigating the precise nature of how perceived difficulty affects subject choices would allow us to better understand the decision making process and to explore the

¹ Science, technology, engineering, and mathematics.

² Statistical analyses tend to agree that it may be harder to achieve certain grades in these subjects compared to others (Coe, 2008; Coe et al., 2008; Ofqual, 2015e). However, readers should be aware of the issues associated with interpreting statistical analyses of inter-subject comparability (Coe, 2007, 2008; Ofqual, 2015c).

validity of the aforementioned concerns. It may grant us greater insight into how to encourage more students to pursue 'key' qualifications. Additionally, from a regulatory point of view, it would be useful to know whether students are being purposefully entered into 'easier' subjects in the hope of boosting student and school performance table outcomes, as has been previously suggested (Coe, 2008; House of Lords, 2006; Jones, Philips, & van Krieken, 2011). I shall begin by discussing how students' choices might be influenced by the perceptions of subject difficulty held by themselves and their teachers. I shall then present the findings of a qualitative study, conducted to investigate relationship between perceptions of subject difficulty and subject choices.

2.1 Students' perceptions and choices

Several authors have listed the various factors that appear to influence students' decision making (eg Foskett, Dyke, & Maringe, 2004; Garratt, 1986; Jin et al., 2011; Springate, Harland, Lord, & Wilkin, 2008; Taylor, 2015; Tripney et al., 2010; Vidal Rodeiro, 2007; Weeden, 2007), and several commonalities have arisen. These include the enjoyment of the subject, the perceived usefulness of the subject (eg for university entrances and for future careers), perceived difficulty and ability, and the advice of friends, teachers, and parents. Although these findings contribute to our understanding of the decision making process, it would be useful to explore them in greater depth, as these studies have tended to simply show that students chose not to study certain subjects because they perceived them to be difficult. As such, although we know that students perceive some subjects to be more difficult than others, and that subject difficulty appears to have an effect on decision making, the thoughts and behaviours that underlie this relationship are yet to be fully established. This is important because the link between perceived difficulty and decision making is unlikely to be a simple one. In particular, the research literature would benefit from an exploration of any additional factors that interact with this relationship.

Perceptions of usefulness may be one such factor, as it is likely that students will need to handle the trade-off between perceptions of subject difficulty and the usefulness of the end qualification (ie for future education or employment). To give an example, a student may wish to avoid mathematics because it is thought to be difficult, but at the same time wish to take it to develop useful skills for future employment. As a large proportion of school students have high aspirations for their future (Rose & Baird, 2013), university and career requirements are likely to be an important consideration for many students. In a similar manner, how much a student enjoys a certain subject may again be an important consideration when making their subject choices. When students enjoy certain subjects, they are more likely to freely engage in them via the experience of intrinsic motivation (Deci, Vallerand, Pelletier, & Ryan, 1991). As well as being more motivated to further their education in enjoyable subjects, intrinsic motivation has also been linked with greater academic

performance, learning, understanding, and memory (see Deci et al., 1991). In other words, this suggests that when a student enjoys a particular subject, that student is not only more likely to choose it, but may actually find it less difficult, because they are better able to learn and engage with the materials present in that course.

These points support our earlier claim that the relationship between perceptions of difficulty and subject choices is unlikely to be a simple one, and suggest that enjoyment and usefulness might interact with (or possibly even supersede) this relationship. One aim of the current research, therefore, was to examine how students resolve such conflicts, balancing the competing concerns of subject difficulty against their enjoyment and ambitions to achieve future goals. This is needed because although past authors have considered the influence of difficulty, enjoyment, and usefulness on subject choices (eg Adey & Biddulph, 2001; ATKearney, 2016; Springate et al., 2008; Taylor, 2015; Weeden, 2007), the interaction between these factors has largely fallen outside of the scope of these authors' interest. The current research aims to investigate these interactions more closely, in order to explore the extent to which subject choices are based on perceptions of difficulty or these other factors. Much of the past research in this area has also focussed upon one or two specific subject areas. It was therefore decided to extend the current investigation to cover the broader spectrum of subject choices.

2.2 Teachers' perceptions, decisions, and influences

For the purposes of this report, the term 'teachers' will be used to refer broadly to all school staff that have an advisory role for students, including teachers of all levels, and non-teaching staff such as careers advisors. Where it is pertinent to refer to one of these job roles more specifically, this shall be made clear.

Although students may believe that their own internal views are the most important factor in decision making (Darling & Glendinning, 1996; Garratt, 1986), external views such as those of their teachers have also been shown to be an important source of information for students (Jin et al., 2011; Vidal Rodeiro, 2007). This includes information about subject difficulty (Brown et al., 2008). Teachers are likely to have their own perceptions of subject difficulty, which may shape the advice that they provide, and the way in which they constrain the choices available to students (eg students are often only able to choose from predetermined lists of options set by teachers; Blenkinsop, McCrone, Wade, & Morris, 2006). It is important, therefore, to take into account their perceptions and behaviours, alongside those of students. The following quote summarises this issue well:

The use of the term 'choice' ... should not be assumed to indicate acceptance of the idea that all students are completely free to choose whatever subjects they like. Even at post-16 level, choice may be

constrained in many ways; students may only be superficially free to choose, or not free to choose at all (Tripney et al., 2010, p. 78).

While other people of course also have an influence (eg parents/peers/siblings), the perceptions of difficulty held by teachers is a particularly important (although rarely investigated) consideration. This is because of their large degree of involvement both before (ie setting policies and choosing which subjects to offer, thus pre-determining students' choices) and during (ie giving advice) the decision making process. The behaviours of teachers are also particularly important for GCSE choices, where multiple options are often made compulsory, limiting the choices that students can actually make. As noted by Blenkinsop et al. (2006), some students may be free to choose just 2 options, once the compulsory core has been chosen for them (via school policies). Other policies may serve to further constrain options according to prior attainment, preventing lower ability students from taking 'difficult' subjects, commonly known as 'pathways' policies. As well as having an influence through policy-setting, teachers are also seen to be a useful source of information by students (Blenkinsop et al., 2006; Jin et al., 2011), meaning that teachers can have further influence over the choices made by students, via the guidance that they give to them. As teachers both pre-determine (via the setting of options) and influence (via advice) the decision making processes of students, any investigation into the effects of perceived subject difficulty on subject choice should certainly take their views into consideration.

Similar to those facing students, teachers may also be faced with conflicting priorities. On the one hand, they undoubtedly wish the best outcomes for their students (in terms of grades and future employability). On the other hand, they have to consider the impact of their decisions on the outcomes for their school (eg in terms of meeting the requirements of the new Progress-8 accountability measure; see DfE, 2015). On occasion, teachers may be required to ensure the latter by their superiors (Pye Tait Consulting, 2014). The concern is that the pressures placed upon teachers to focus upon securing a good position in school performance tables (see Perryman, Ball, Maguire, & Braun, 2011) might not in every case be in the best interests of their students. For example, teachers may feel the need to encourage particular students to take 'easier' options that might not be as useful (eg for university admission) as other subjects (Fazackerley & Chant, 2008), but would secure higher outcomes to help their school's performance table standing (eg see Jin et al., 2011; Rowbottom, 2013). Conversely, teachers may feel the need to encourage other students to take subjects that may be too difficult for them, such as the sciences or modern languages included in the EBacc³, which may be less

³ English Baccalaureate (EBacc) subjects are part of the new Progress-8 accountability measure. These include English, maths, the sciences, modern languages, history, and geography (DfE, 2015).

suitable, but would ensure that their grades contributed to the school's accountability score.

A survey commissioned by Ofqual in 2014 found some evidence for the existence of these practices (Pye Tait Consulting, 2014). Of the teachers that responded to the survey, 65% expressed that they took performance tables into account when choosing which options to offer their students (similar findings were reported by Clemens, 2011), 11% specifically mentioned encouraging students to choose options from 'easier' qualifications, deliberately focussing upon what is best for the school, rather than what is best for their pupils, and 49% reported that they had encouraged students to take subjects that they would perform well in, rather than subjects that would be best for their enjoyment or future employment (despite this practice not being seen as very acceptable by the same teachers). It is not clear how widespread these practices occur. Another aim of the current report was therefore to investigate how teachers take their perceptions of subject difficulty into account when balancing the needs of their pupils against those of their school.

3 Study aims and methodology

To summarise the points raised in section 2, research is needed to examine in greater depth how perceptions of subject difficulty affect students' subject choices. In particular, we would benefit from gaining greater knowledge of the extent to which students base their decisions on perceptions of difficulty, how these perceptions interact with other concerns such as enjoyment and/or usefulness, and how the perceptions held by teachers might also influence the choices that students make.

In order to address these aims, and to answer the question posed by the title of this report, the following research questions were proposed:

1. To what extent do students base their subject choices on perceptions of subject difficulty?
 - a. Is the relationship between subject choices and perceptions of subject difficulty affected by students' perceptions of usefulness and/or enjoyment?
 - b. How much are students knowingly swayed by the perceptions of difficulty held by their teachers/parents/peers/siblings?
2. To what extent do teachers knowingly influence students' choices, based on their own perceptions of subject difficulty?
 - a. Are school policies implemented that might pre-determine students' choices, based on perceptions of subject difficulty?

- b. Do teachers purposefully direct students towards making certain choices, and how is this affected by perceptions of difficulty?

In order to explore these questions, 49 teachers and 112 students were recruited from 12 schools and 6th form colleges⁴ from a range of geographical locations in England. To gather a range of views, 4 different school types were targeted: comprehensive schools, grammar schools, independent schools, and 6th form colleges. One-to-one interviews were conducted with the teachers, and focus groups with the students; semi-structured modes of interviewing were used for both. Teachers were interviewed about both GCSEs and A levels, but the student focus groups either focussed upon experiences of GCSE choices (years 9 and 10) or A level choices (years 11 and 12). Once the interviews/focus groups had been completed, audio recordings were transcribed by an external transcription company, and these transcripts were then analysed using thematic analysis. Full details of the methodology can be found in Appendix A, and copies of the interview schedules can be found in Appendix B.

4 Results

The final thematic map outlining the themes, subthemes, and relationships between them, is presented in Figure 1⁵. These themes were developed to cluster around the main people of interest (ie students and teachers). The subthemes of “Teachers’ Perceptions” were based upon their main concerns: perceptions of subject difficulty, the policies they set, and the advice that they give to students. The subthemes of “Students’ Perceptions” were chosen based upon the most commonly mentioned determinants of their choices; namely their perceptions of difficulty, enjoyment, and usefulness. Each of these themes and subthemes shall now be discussed in turn.

⁴ For simplicity, the term ‘school’ shall be used henceforth to refer to both schools and colleges. Any notable differences between these institution types will be made apparent where necessary.

⁵ It is worth noting at this stage that Figure 1 is not intended to be a full model of the decision making process, but rather aims to outline where and how perceptions of difficulty fit into this process.

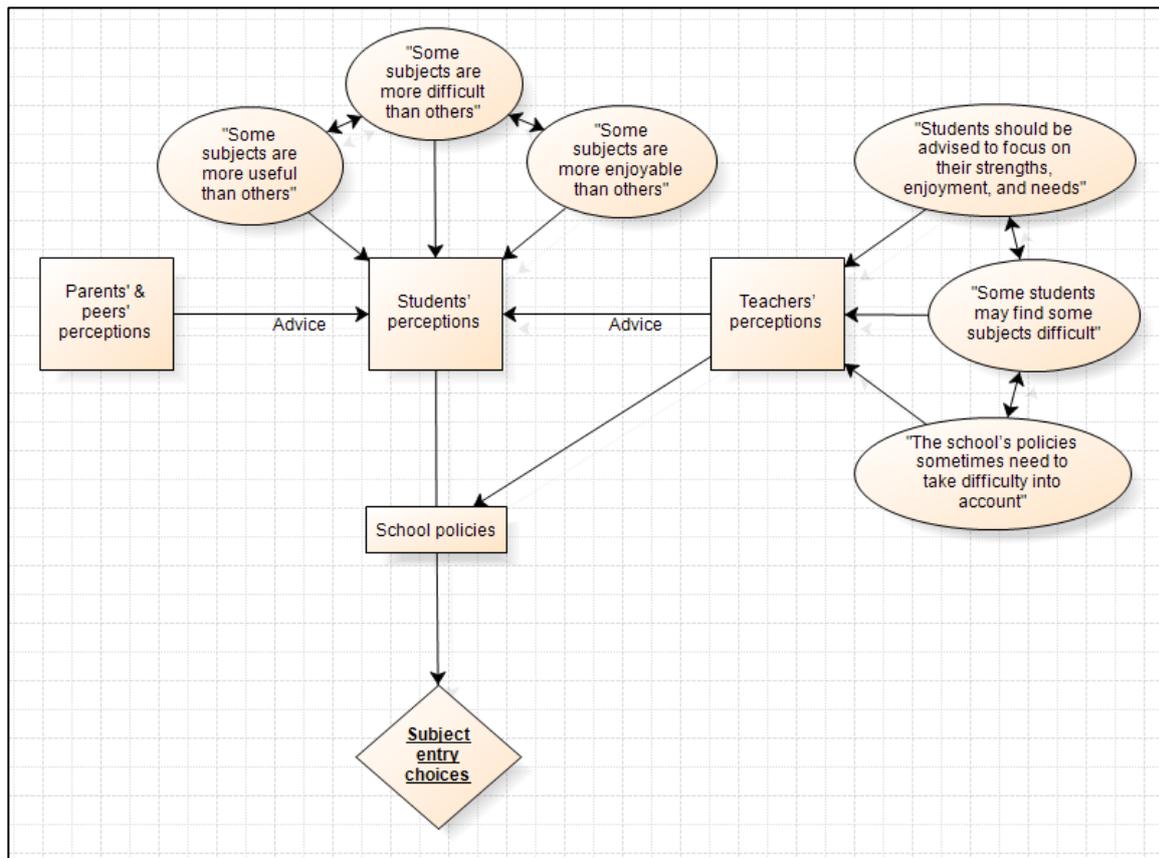


Figure 1. Thematic map of the influences of perceptions of subject difficulty on students' subject choices.

4.1 Teachers' perceptions and behaviours

I shall start with a commentary on teachers, as their perceptions and behaviours may influence the perceptions and behaviours of their students (eg through the advice they give), and in some cases may pre-determine students' choices (eg through the setting of school policies). Teachers therefore have a heavy influence over early stages of the overall decision making process.

4.1.1 Some students may find some subjects difficult

When asked whether or not they believe that some subjects are more difficult than others, teachers exhibited a noticeable dichotomy in their responses. Some teachers strongly expressed the belief that there is a real variation in subject difficulty, while others argued that no subject can be deemed to be more difficult than another because each is difficult in its own right. Those in the former group most often categorised STEM subjects and languages as being among the most difficult. Less

'traditional' subjects such as drama, media studies, and food technology, tended to be seen as being amongst the easier options by these teachers⁶.

Independent School Teacher

The difference for us... it's an absolute fact. Like I can just demonstrate that our weaker students who take geography will get an A* and some of our stronger students who take physics will get a B... It's such an obvious and dramatic gulf that it's almost undeniable for us.

Grammar School Teacher

I think they pull on different skills. So I wouldn't necessarily view one as being more difficult than another.

Those who believed that some subjects are genuinely more difficult than others often cited several reasons for their perceptions. These included:

- the depth of analysis and understanding required (eg courses with assessments that require simple recall were generally seen to be easier than those requiring deeper understanding and application),
- the style of assessment (eg courses with more coursework/controlled assessment were generally seen to be easier than those assessed mainly by exam); and
- the size of the workload (the greater the workload, such as the amount of content to learn, or the amount of effort or time-management required, the more difficult a course was seen to be)

Certain combinations of subject were also seen to be more difficult than others. For example, a combination of several arts, science, or essay based subjects were commonly perceived as being difficult because of the workload and time management required. Combinations of subjects from very different fields of interest were also seen to be difficult.

6th Form College Teacher

Taking all the sciences is difficult because of how difficult the content is on top of how much time they're going to have to put into it... But if they take [several] completely different subjects where there's no similarities between them, then that's probably equally difficult for them.

⁶ Teachers also commonly noted that they perceived BTECs and other vocational type qualifications to be amongst the easiest courses. However, as this is an example of inter-qualification (as opposed to inter-subject) comparability, this falls outside the scope of the current project.

A small number of teachers also believed that differences in the quality of marking may also cause some elements of difficulty. Subjects that are assessed via more subjective methods (eg English or art), are perceived to have naturally more variable marking than assessments with more multiple-choice or short-answer questions (eg maths) (cf Ofqual, 2014). This can cause problems for schools, and creates a belief that it may be less likely for students to get higher grades in certain subjects,

Grammar School Teacher

We do believe there are some issues in the marking and assessment of English that make it difficult to jump through those hoops accurately. There does appear to be an element of randomness in the market... therefore students might say it's quite hard to get an A* in English.

How easy it is to relate to certain subjects was also seen to cause some variation in difficulty. For example, several teachers noted that biology is often perceived to be the easiest of the three traditional sciences. Some noted that this may be driven by the fact that biology has more relatable content than either chemistry or physics. Relatability or familiarity to daily life is also relevant for other subjects.

Independent School Teacher

[Biology is] more hands on and it's more easy to relate [to]. Because, you know, if you're looking at the human biology, then they physically can see that on a human. Or plants... there's a bit more physicality where they can actually access it. They can see it happening... Whereas, physics and chemistry, I know you're still doing experiments, but ... there's no right or wrong answer and they don't physically see it. It all very strongly links to the maths.

6th Form College Teacher

I think things like sport and media are actually parts of everybody's everyday life... People assume that it's going to be easier, because we routinely talk about our own media consumption, or our own sport or recreational activities. Generally, people don't in everyday discourse talk about the gravitational pulls or sort of detailed chemical reactions.

Teachers also acknowledged that the way in which a subject is taught will also impact upon its difficulty. This might be dependent upon the specific teaching strengths of each school, but more widespread beliefs about the teaching of certain subjects might also exist.

Comprehensive School Teacher

They might not have very good teacher... so they might find the subject difficult to understand because of how the teaching is, or a personality clash between them and their teachers.

6th Form College Teacher

I think there's also... often the perception around the kind of teachers that might be teaching certain subjects. I think there's a perception that science teachers tend to be quite harsh and hard and your kind of art-type teachers tend to be a bit more liberal, bit more relaxed.

The 'jump' in demands from GCSE to A level was also seen to be another potential source of difficulty, with some subjects having a larger jump than others.

Comprehensive School Teacher

GCSEs in some subjects lead better on to the A level than in other subjects. So I think students generally find that there's a massive leap in the maths and sciences, and whether that's because they're harder or whether that's because the GCSEs aren't preparing them in the same way as they are for the other subjects, I'm unsure.

Despite some disagreement over whether some subjects are objectively more difficult than others, there was an overwhelming consensus that whether a student actually found a certain subject difficult was ultimately still dependent upon that individual's strengths. In other words, although some subjects were sometimes seen to be more difficult than others, this did not mean that teachers thought **all** students would struggle on those courses.

Grammar School Teacher

I always think how difficult it is depends on your strengths. Because if you are very musical, music is an easy option; if you have no musical bones in your body, it's awful. You know, same with art. And really why does that change for any of the subjects? Because you have people who have a flare and a passion for the subject and they find that easier.

4.1.2 The school's policies sometimes need to take difficulty into account

As mentioned previously, teachers' perceptions of subject difficulty become particularly important when one considers that students' subject choices can be pre-determined by the various policies that schools put into place, some of which are based upon perceptions of subject difficulty. To maintain relevance to the topic at

hand, the remainder of this section shall focus only on policies set for the reason of difficulty, and not those set for other reasons. For example, several subjects are compulsory at GCSE due to government policy, and when options are not offered this is most often due to a lack of demand, funding, or staffing. These other reasons do more commonly drive policy decisions, but subject difficulty nevertheless features in some.

Outside of the compulsory curriculum, schools generally did not have policies set in place that guided the options students could choose to study at GCSE, and students were largely given a free choice, at least from a policy point of view. Advice and guidance will be covered in the next section. Although students often had to choose from option blocks, these were mostly constructed to reflect students' initial preferences⁷. To accommodate students with different levels of ability, some teachers mentioned that a selection of 'difficult' and 'easier' subjects could be found in each block.

Comprehensive School Teacher

At the moment, any student can choose any subject they want. They might have a discussion with those classroom teachers [or] with the subject teachers about whether that's appropriate for them, but as a school policy any child can choose any subject.

Some schools did have 'pathways' policies (cf Blenkinsop et al., 2006), meaning that students with lower levels of attainment did not have the same compulsory core as other students. For example, this often meant that studying a foreign language was no longer compulsory. Sometimes this meant that lower ability students were required to do a more vocational type qualification (eg a BTEC) instead of a GCSE, as such courses are seen by some teachers to be more accessible.

Policies were more prescriptive when it came to A level choices. Most schools implemented a general entry requirement for their 6th forms, which was often a specified number of A to C grades at GCSE. To study a particular A level subject, students were often also expected to have attained a certain grade in that subject at GCSE (commonly a B or A grade). If students met these criteria, in most schools they were given a free choice over which subjects they would like to study (again, from a policy point of view). However, higher entry requirements were often implemented for certain subjects, which prevented all but the high-ability students from choosing more 'difficult' subjects at A level. For example, the entry criteria for maths, the sciences, and foreign languages were often higher than for other subjects

⁷ For example, a common approach was to survey students to gather their preferred options, and then option blocks were constructed to accommodate the majority of these preferences, within the limits of timetabling. Students then had to more formally choose their subjects from these option blocks.

at A level; the given reason being that students are expected to struggle on these courses if they are not at an appropriate level at the start of the course. Teachers often stated that these differences in entry requirements were primarily based on past data, rather than perceptions alone. Nevertheless, there was often a degree of flexibility in these particular policies, as many teachers believed that GCSE grades were not always a true indication of students' ability.

6th form college teacher

We take the view that to do the sciences and to be successful in chemistry, biology, physics, mathematics, you [must] have already achieved... a B grade or above to be successful... What you might describe as our [more] inclusive subjects, like media studies, like sociology, you can get onto those with just your standard five A* to C grades. So we've got a clear view that there are some subjects which are probably more accessible.

Grammar School Teacher

Each subject has its own particular entry requirement. And that is based on prior experience. And we know, if you have got a C in maths you will not stand a chance of passing A-level maths.

Entry criteria policies were also partly driven by performance tables and accountability measures. This was particularly true for the 6th form colleges and comprehensive schools in our sample, who appeared to feel greater pressure from performance measures than did the independent and grammar schools. Although not strictly related to subject difficulty, the fact that these schools sometimes raised their entry criteria in response to accountability measures meant that students with lower levels of attainment were again prevented from taking subjects that they had a lower likelihood of achieving high grades in (ie those that they would find more difficult).

6th Form College Teacher

You cannot afford to have kids fail because you get hammered by Ofsted.. And why would you want kids to fail? So we've been really, really, really tight in the last seven or eight years in making sure that our entry requirements are tightened up.

Comprehensive School Teacher

[Accountability measures are] more of a driver at GCSE for us to make sure they're in the right place because if there's a student taking triple science and they end up with three Ds when they could've done core and additional and get two Cs, that does make actually a difference to the

percentage for the league tables... But if, like I said before, if there's a student that really, really wants to do triple science we will say yeah OK you can do that.

Accountability measures also drove other policies, such as those that encouraged more students to take subjects that would 'count' towards the school's performance score (eg subjects included within the EBacc or Progress 8). Although there was still some flexibility, this occasionally meant that some students found themselves on courses that teachers felt they were not well suited for, and therefore found difficult.

Comprehensive School Teacher

Yes, Progress 8 and the EBacc thing and the headline figures on which this school will be judged; every single thing that happens in this school is driven by that. So they're trying to maximise the number of students who will achieve Progress 8 within their options set-up.

Comprehensive School Teacher

[Because of the EBacc] ... You have got pupils in my year group that chose, that had to choose a language or humanities in two of their option blocks and they are just not suited to those two subjects at all.

Although the range of subjects offered at GCSE and A level was largely chosen on a supply (eg funding and staffing) and demand (from students and parents) basis, there were a few instances where schools chose not to offer certain subjects because they were seen to be too difficult, again meaning that students were unable to study them. Other schools felt the need to remove certain subjects from their offer because they would not 'count' towards their performance measure scores.

Independent School Teacher

We absolutely feel like our students should be learning to do computing and that that should be on offer, but computing A level, statistically, ... it's just where everyone crashes and burns... . So we don't offer computing and I think having talked to [other local schools] they take exactly the same position, it's too difficult.

Comprehensive School Teacher

When you look at some of the subjects that have been chopped, that actually engage pupils, [they] are far more arts based...

Although independent and grammar school teachers expressed notably less concern about their standing in performance tables than the other school types, some did state that they also had to adapt their curriculum offer, based on the expectations of

them as an 'academic school'. This often meant removing subjects from their offer that they saw as being more accessible, in order to maintain their 'academic' reputation.

Grammar School Teacher

We offer a very academic list, so yes we try and be quite traditional. The fact that we offer Latin and we offer Mandarin, we pride ourselves in it. It fits our students to go for a very traditional academic list, I suppose. We're not offering vocational at all. And we're not offering any of the slightly more alternative GCSEs, some of which are disappearing anyway with the curriculum changes. It tends to be pretty old school really.

4.1.3 Students should be advised to focus on their strengths, enjoyment, and needs

It became clear when talking to teachers that their advice on subject options, regardless of school type or level of study, revolved around a triad of three main concerns: what the student would be able to succeed in (related to perceptions of person-specific difficulty); what the student would enjoy; and what the student needed in terms of his or her future career ambitions.

Advice based on strengths (ie person-specific difficulty)

Perceptions of subject difficulty in a general sense (ie not person-specific) did not feature heavily in the advice given by teachers to their students. Rather, most teachers stated that their advice was primarily based upon what each individual student might find difficult or easy, depending on that student's individual strengths.

Grammar School Teacher

I think that the advice would always come down what kind of skills did they have. And if you were very good at maths then obviously you want to pick up maths-based GCSE and if you were gifted at languages then you'd want to stack up on those.

Teachers did state, however, that a fair amount of their time was spent on informing students about the realities of certain courses. For example, it was noted on several occasions that students fail to anticipate the maths and science content of a psychology course. Teachers did therefore give some more general warnings about subject difficulty to dispel such misconceptions.

6th Form College Teacher

I'm realistic with them [about psychology]. So I do tell them about the difficulties with the maths and the difficulties with the science... I don't care about their opinion on things. So I always make sure that's put across really so they are best informed. And try to diminish any idea that we're just talking about how we feel and it's about dreams.

In more severe cases, teachers sometimes felt the need to intervene, and more actively discourage students from choosing subjects that they would be unlikely to succeed in (ie those that students would find too difficult). This often occurred in circumstances where they felt a student was perhaps being unrealistic in their ambitions, leading teachers to more strongly discourage such choices, or encourage alternative routes that they believe may be more accessible for them.

Comprehensive School Teacher

I did steer a student away from doing maths. It was completely inappropriate for him to do it. He would have got a C. In fact he did get a C at GCSE, but the amount of support that was required to get him there and it would have been completely inappropriate for him to study that at A level.

6th Form College Teacher

If somebody came in wanting, you know, their heart's set on doing a science programme and they didn't have the [GCSE] grades, we would in the first instance go for the applied science route

Comprehensive School Teacher

So I like to encourage them and I'd say why can't you do this? Just bear in mind you might want to take this route instead, or you might want to study this and then step into that a bit later. Why not do this course and then let it lead on to an A level in two years' time? So that they're taking the same path, just maybe different steps.

There were other examples of higher ability students (ie those with the ability to succeed in more 'difficult' courses) being guided away from what are commonly perceived to be 'easier' subjects, because this was seen to be damaging for their future career prospects. However, this was relatively rare.

Comprehensive School Teacher

I guess in terms of your top end students, there are certain subjects I think I would probably try and get them away from, I guess. Mainly not because I think they're easy, but mainly because I know that they're maybe not given the same weighting at universities... So for example I'd probably

advise a student to do art over media studies, or English language over media studies, depending on which way they were looking at media, because I know they're seen as the better subjects by universities.

Although most teachers stated that they did not take accountability measures into account when giving advice to students, some teachers did feel pressured to direct certain students away from the more difficult subjects to ensure that high outcomes are maintained for themselves and the school.

Comprehensive School Teacher

If I don't think they're going to do very well in geography, I discourage them [from doing it]... which is completely different to how I've been for the past 20 years. But I've only started this year doing that. I used to say that anybody could and should study geography at whatever level and if they're going to find it difficult and struggle and work hard and achieve a G then that G is worth as much as any other grade but I can't do that anymore because [of] my performance and my pay and my job essentially. The longevity of my career in teaching is down to the results that the children get and I can't accept anybody who's not going to achieve.

As previously noted, most advice was given on a person-specific basis. However, there were a few examples of a departure from this, where teachers gave more general (ie not person-specific) advice a wide range of students to choose what they saw as being easier subjects. This was especially (although not exclusively) the case for those students thought to be of a lower ability, who were often as a whole group directed into 'easier' options.

Independent School Teacher

What is definitely true is that I have talked them into doing what we call applied subjects, which they now call soft subjects, and I actively try and do it because I think it's like an in-the-bag grade.

Comprehensive School Teacher

There are subjects where we think, if you're going to do those two, then have this as the third, and it's subjects like media. We have quite a few children that... do very well in it, so media's often advised as the third subject.

Similarly, general advice was sometimes given regarding a larger 'jump' in difficulty from GCSE to A level in some subjects compared to others. Some general advice was also sometimes given around combinations of subjects, with some teachers discouraging students from taking on too many subjects with a high workload.

Independent School Teacher

I think that's the big message that we have here is be really careful about choosing sciences and languages at A-level because it is a big jump and you need to commit to it.

Independent School Teacher

We know for a fact that there's a big step from GCSE to A level in... the sciences, maths and modern foreign languages. I'm very mindful that if a student wants to study those subjects at A level, I will talk through with them do they realise that there is a big step up and are they prepared for the challenge.

Grammar School Teacher

That's another thing I often given advice on... "don't load up on four essay writing subjects because that time commitment throughout the year is going to be huge", and so I tend to say "think about a little bit of balance in between some essay subjects and some exams".

Each of these points suggest then that teachers do give advice based on perceptions of difficulty (mostly person-specific, but occasionally more general advice). However, teachers very rarely stated that they would actively prevent a student from taking a certain course, as long as they met the entry criteria. On the whole, they saw their advice as being guidance, rather than firm instruction.

6th Form College Teacher

We talk about their options and about career choices but we don't twist their arm, we let them make their choices.

Comprehensive School Teacher

I think you would try and encourage them but you wouldn't force the issue if you knew that actually that was against what they really wanted.

Advice based on enjoyment

Most teachers stated that enjoyment was a key feature of the advice given to students. In fact, teachers often acknowledged that students are more likely to do

well in a subject (ie not find it as difficult) if they enjoy it, and should therefore aim to choose subjects that they enjoy.

6th Form College Teacher

The first thing I always ask students: what do you enjoy? Because if a student sits with me on interview and I look at the sheet and they've got subjects they feel they have to do, I can know from experience that, if you feel you have to do it and you don't actually want to do it, you're not going to do well.

Grammar School Teacher

The message I was giving is "please choose something you enjoy", because I passionately believe that it's most important that they enjoy it and they don't do it just because their parents say they want them to do it.

Advice based on needs (ie usefulness)

Teachers also took their students' career ambitions into account when giving advice, which seemed to be more the case for A level options than at GCSE. On occasion teachers felt the need to try and raise students' ambitions, encouraging them to consider potentially more challenging subjects to enhance their career prospects. This also sometimes meant dispelling certain misconceptions that students might hold about particular subjects.

6th Form College Teacher

I base my advice on career progression really. So if they're wanting a career as a nurse, for example, and they're quite a talented young individual, then obviously biology is a requirement.

Comprehensive School Teacher

If I thought they were selling themselves short and if it's just because they're being bone idle then you would, I would absolutely encourage them to take more difficult subjects, more subjects that open more doors for them.

Independent School Teacher

I see some students coming in and saying 'well, my parents think if I study photography the university won't take it seriously', and I bust that myth by saying 'well, why would a school like this offer a subject like that if it wasn't considered seriously by the universities?'

4.2 Students' perceptions and their subject choices

Similar to the advice given by teachers, it became apparent throughout the student focus groups that students' decisions were based largely upon a triad of perceptions of subject difficulty, enjoyment, and usefulness. The three sub-themes of 'Student Perceptions' therefore reflect these three main concerns.

4.2.1 Some subjects are more difficult than others

On the whole, although some subjects 'stood out' to students as seeming to be generally more difficult than others, students mostly believed that subject difficulty is very much dependent upon the individual (consistent with the views expressed by teachers). For example, they often acknowledged that what they found difficult, someone else might find easy, and vice-versa. Because of this, most students agreed that their decision making was based primarily on person-specific perceptions and experiences, rather than on any general (ie commonly held) notions of subject difficulty.

Year 12 Student – Comprehensive School

I think it's different for every student... I think it all depends on the student in terms of what subjects are difficult and what subjects aren't.

Year 12 Student – Independent School

I look at subjects from a personal point of view when I'm choosing them, as opposed to a collective. If I myself find a subject easier, and other people find it hard, I wouldn't listen to what they're saying, I'd go on my own basis.

Different students appeared to prefer different styles of assessment or different types of content, which caused some of the variation in perceptions of subject difficulty at this individual level. Differences in experiences also arise due to differences in natural talent; especially for the more arts-based subjects.

Year 12 Student – Comprehensive School

I originally wanted to do religious studies instead of chemistry. But I knew logic-based subjects suited me a lot more than trying to learn content, and essay writing as well. I thought I'd do a lot better in chemistry than in religious studies.

Year 12 Student – Grammar School

In music, drama and art, I think they're subjects that people can be put off doing them because they think that you have to be good at them already.

If you're not a natural musician there's no point trying to learn something if it doesn't come naturally.

Students recognised that these perceptions of subject difficulty did have some impact on their subject choices, and some of them had clearly thought a lot about the issue. Some purposefully chose 'easier' subjects, and others (more commonly) purposefully avoided 'difficult' subjects, such as maths or the sciences.

Year 12 Student – Grammar School

I think if you've taken it at GCSE and you found it quite challenging, then you sort of ask yourself, 'well, maybe, why would I want to take that up at A level where I know (a) it'll be more challenging, and (b) it'll be more stressful for me'.

Year 10 Student – Comprehensive School

If you knew that you were going to get a higher grade in something that you find a lot easier than something you found difficult you're obviously going to go for the easier one.

Year 10 Student – Comprehensive School

[When asked whether they had worried about subject difficulty when making their subject choices:]

I cried, I had a meltdown on options evening.

Given that teachers are able to build an overall impression of the decisions being made in their classrooms/schools, they were able to provide some additional insight into how choices may have varied between students. In particular, some teachers recognised that the extent to which students based their decisions upon perceptions of difficulty was somewhat dependent upon their level of attainment, with higher ability students being affected less than lower ability students. Teachers also recognised that perceptions of difficulty had a greater impact on those making their A level choices, because many of the more 'difficult' GCSE options are already part of the compulsory curriculum.

6th Form College Teacher

I don't think the higher ability students worry about that because they're confident they can deal with it. I'd say it's the mid ability. I think the lower ability avoid the hard subjects, middle ability worry and top ability don't, they just choose it.

Comprehensive School Teacher

Apart from history or geography or do I take triple science, there isn't a huge amount of academic decisions to make [at GCSE], because much of the options that we've got left could be considered slightly easier options anyway.

Despite the general consensus that subject difficulty is largely dependent upon the individual (ie person-specific), and that they primarily based their decisions on their own strengths, students did express opinions that some subjects are generally more difficult than others (ie in a more objective sense), due to certain features of the course. For example, some subjects are seen to be more difficult than others because of the workload, the teaching, disruptive classmates, or the style of assessment. This seems to suggest then that although students perhaps pay greater attention to notions of personal (subjective) difficulty, perceptions of a more general variations in subject difficulty do nevertheless exist.

Year 11 Student – Comprehensive School

History [is difficult], because obviously there's a lot of essay writing and having to remember all the key dates, and that's quite hard.

Year 12 Student – Grammar School

In GCSE there's quite a few subjects which you can get a high grade because you know the mark scheme, and you can write what the examiner's looking for.

Year 9 Student – Grammar School

It could also be to do with the teachers. Maybe if the teachers are better in one subject then it would be easier to do that subject because you're being taught better.

Like teachers, students also recognised that some subjects are easier to relate to than others. For example, because biological concepts can be observed to some degree in day-to-day life, they are quite easy to relate to and understand. The same cannot be said for other, more abstract concepts, such as maths.

Year 12 Student – Grammar School

I think that especially with maths and maybe more so science as well, you can definitely see a greater disparity of people who find it easy and people who find it difficult. While with English and history, and those sort of subjects, most people can understand and get it because ... it just means that it's more relatable to a greater range of people. And I think that's why maths and science are sometimes viewed as more difficult, because you

just will get people, just because it's not how their brains work, they just won't get it.

As well as thinking about the difficulty of individual subjects, like teachers, some students also stated that certain combinations seemed to be more difficult than others. These perceptions tended to focus upon the workload of different subjects. In particular, there was the view that a combination of essay- or arts-based subjects would be quite difficult to manage. Other combinations were seen to complement each other, therefore making students' GCSE/A level experience easier overall.

Year 12 Student – Independent School

If you've got a lot of essay subjects, for example English, we get two essays a week. And it's the same with history and RS. So if you were to do all those three I think timing-wise it would be really difficult to manage it. I think that's what puts some people off.

Year 12 Student – Grammar School

I think I'd find maths difficult. Just all the things you have to learn, the different equations and calculations, I find that difficult. And I was initially going to choose physics possibly because I did well in it and I was enjoying it. But without maths I think that would be incredibly difficult.

Although all students stated that their choices were firmly based upon their personal strengths, and most said that they were not affected by commonly held notions of subject difficulty, some did suggest that externally held perceptions did sometimes have some influence on their choices on occasion.

Year 9 Student – Independent School

If people personally think this is a really difficult subject, and if a lot of people say it, then it'll start to make you consider the subject yourself... but I think primarily my rating on the difficulty scale comes first.

However, students often recognised that people's perceptions of certain 'easy' subjects can be wrong, and that people may have had different opinions had they actually taken the course. Interestingly, none of the students said the same about 'difficult' subjects (ie that they aren't as hard as people think).

Year 12 Student - Comprehensive School

A lot of people assume that media studies is easy but it's so much harder than you think. There's so much coursework and effort and hours that go into it.

To summarise this section, perceptions of subject difficulty do seem to have some influence over students' subject choices. However, as will be discussed in the following sections, students rarely stated that this was their main concern, but rather paid more attention to the usefulness and enjoyableness of each course. As one Year 12 student (independent school) stated: "I think if you really want to do the subject nothing will put you off it."

4.2.2 Some subjects are more enjoyable than others

It was common for students to state that they primarily based their decisions on whether or not they enjoyed (or thought that they would enjoy) certain courses. This actually 'overruled' any perceptions of difficulty in some cases.

Year 11 Student - Comprehensive School

The ones I've chosen are all sort of what I'm interested in and it doesn't really bother me if they're difficult or not.

Year 10 Student – Independent School

I chose one subject that I ... wasn't good at at all. I just enjoyed it a lot. So I just thought I'd do it, try hard and then it's better enjoying it and not doing as well ... but hating it and not wanting to go to the lesson.

Year 12 Student – Comprehensive School

With maths, I'm not exactly the best at it but I enjoy it, so I'm keen to learn about maths and try it. Even if I get the answer wrong I'm still willing to keep on trying because I actually enjoy the subject.

Enjoyment also appeared to change how difficult students thought a course would be, as several reported that enjoyment made them more motivated in certain subjects. When this was the case, they reportedly put more time into their work, therefore improving the possibility of achieving higher grades in their assessments.

Year 9 Student – Grammar School

If you enjoy it you might be more likely to be good at it already. And then if you enjoy it more you're motivated to do extra work or work harder on that subject.

Year 12 Student – Comprehensive School

At the end of the day you're going to do subjects you enjoy. It's like if you enjoy it you're more willing to put more effort in, which is why you find it easier.

Although many students focussed only on their enjoyment of the subject content itself, others did state that they chose courses that their friends were taking, or courses that had more likeable teachers (with the latter being more common than the former). Again, these social factors made certain subjects more enjoyable, thus making them more attractive during decision making.

Year 9 Student – Grammar School

You can be swung by what your friends do. You want to be with your friends at GCSE.

Year 12 Student – 6th Form College

I think the teacher that's teaching you is very important as well. Because say if you don't like your teacher, that will make the lesson inevitably harder, because then you're obviously not going to enjoy the lessons.

4.2.3 Some subjects are more useful than others

When deciding which subjects they might choose to study, students also paid a large amount of attention to how useful they thought each subject would be in terms of allowing them to access their preferred university course or career. As with enjoyment, students seemed willing to overlook perceptions of difficulty when they felt they 'needed' to take certain subjects.

Year 12 Student – Independent School

If you needed it for [university], like if you wanted it to get in to a degree and you knew you needed it, you don't really care about how hard it's going to be. You just focus on that you need to do that subject.

Year 12 Student – Comprehensive School

My choice was purely around what I want to do for a career because I've always known what I want to do. So I just based it on that... I knew what I wanted to do and I just matched the A-level subjects around that.

Some students did not make their choices with a specific career in mind. However, they still took usefulness into account, for example by expressing the need to keep their options open, or that making certain choices might 'close doors' for them. Again, these students were perhaps more willing to take subjects that they may find difficult, to ensure that they do not lessen future opportunities.

Year 9 Student - Comprehensive School

I wanted to do just combined science because I don't enjoy [science] too much. But then speaking with the teachers and they said it's better to do

[separate science], and if you can do it, do it. Because if you don't, it's going to close a lot of doors for you... Even though I don't enjoy it I think it's better to do it.

As illustrated by the above quote, usefulness seemed to 'overrule' enjoyment on occasion. Some students expressed that they were willing to take a 'useful' subject, even if they didn't find it enjoyable. This is consistent with Adey and Biddulph (2001) and Ryrie, Furst, and Lauder (1979), who both argued that usefulness is more influential than enjoyment on subject choices.

Year 12 Student – 6th Form College

A lot of people I know here don't actually like their subjects too much, but they'll keep them because they know they need them to do medicine in the future, or different subjects. It's what they want to do after that affects them mainly I think, or is one of the main reasons.

Year 10 Student - Comprehensive School

I wanted to be a midwife... And I was like, I definitely need to take health and social. If I hate it, I will take it.

Nevertheless, although usefulness was certainly an important consideration, there did seem to be a limit to how much difficulty students were willing to overlook. If a subject was seen to be useful (therefore motivating them to choose it), but difficult to the point that achieving a desired outcome would be unlikely, students would still avoid choosing to take that subject.

Year 9 Student – Comprehensive School

It depends how difficult you find it. If you find it like really massively difficult then I wouldn't take it, because I know I'm not going to do as well as I could in the others.

Students were also asked whether the 'status' attached to certain subjects had an impact on their decision making, as stereotypes often exist about certain subjects that may make them seem less or more worthwhile. Although students often recognised that people's perceptions can be wrong, they commonly expressed a belief that taking more 'difficult' subjects (as perceived by peers/parents/universities/employers etc.) would attract more respect. Some also believed that other, lower status subjects (commonly those perceived to be easier), are sometimes seen as being less worthwhile by the general public. There seems, therefore, to be a link between perceptions of difficulty and perceptions of usefulness. Students were especially concerned about what universities thought,

often referring to the 'facilitating subjects' as being amongst the most important/useful. However, there were contrasting views here. Although many students stated that this did not influence their choices, others said that it did; both in terms of them purposefully choosing 'higher status' subjects (which they may find too difficult), or avoiding 'lower status' subjects (which they might have done well in and enjoyed). Teachers also recognised that status had some impact on students' decisions.

Year 10 Student – Independent School

It would probably affect me, because I think high status subjects open up more opportunities for you, like sciences and English and maths.

Year 10 Student – Comprehensive School

You always get told that job interviews like this subject, and they don't like it when you take this subject... You've got to think, well if I take this and they don't like it is it going to risk when I'm older affecting what I actually can and can't do?

Grammar School Teacher

The arts in any school will suffer in that sense, you know, for being not academic enough. Which is not true, but art, music and drama are obvious subjects. PE is another, [and] design and technology. Those would be the five subjects here... that struggle.

Some differences between school types arose within this subtheme. In particular, it was apparent that many independent and grammar school children had high aspirations for their future, whereas several teachers from the comprehensive schools in our sample noted that many of their students had relatively low aspirations. This latter group of students was therefore somewhat less motivated towards options more commonly perceived as being more difficult (eg the STEM subjects), because they did not aspire to the careers that such subjects often lead to.

Comprehensive School Teacher

I don't know what the problem is but... children and parents don't put a huge amount of value on education. Obviously some do, but as a general thing ... I don't think we'd have anybody here thinking 'oh yes I want to go to Cambridge or Oxford, or I want to move abroad'. They would just be like ... 'I want to stay in [the local area]' and, you know, so that's a problem for us.

Teachers also recognised a difference between those making their GCSE choices, and those making their A level choices. In particular, enjoyment seemed to be a greater concern at GCSE, whereas usefulness seemed to be greater at A level.

Comprehensive School Teacher

[For GCSE choices] we encourage students to go with things they're interested in. I think that is the main driver... I think it's often a change [at A level]. I think that certainly enjoyment comes into play but I also think maybe a number of other factors become far more important. I think careers and university pathways are at the heart of many decisions.

4.2.4 Advice received from others

Students were asked about how others might have influenced their choices, to gain a sense of whether they believed that they were guided towards or away from certain choices on the basis of other people's perceptions of subject difficulty. When asked whom they tended to turn to most for advice, students were equally split in those who preferred to turn to their parents, and those who preferred to turn to their teachers. However, students did note that they also received some advice from other students and their older siblings. A few students stated that they did not turn to anyone for advice, but rather based their choices on their own opinions, or their own research (eg via the internet).

Advice received from teachers

Students stated that they found the information received from their teachers useful, especially in deciding whether or not they would find certain courses too difficult. They often acknowledged the fact that teachers have more experience than themselves in each subject area, and so they generally trusted the advice that they received. However, although many felt that they were "discouraged" by their teachers for certain choices, students did maintain the belief that it was still their choice, and rarely felt that they were forced into certain subjects, in terms of advice – option blocks did prohibit choices for some.

Year 9 Student – Grammar School

I think the most important opinion is probably your teachers, because they're the ones that mark your work, and they know what you can and can't do. So if they say that you shouldn't take something then you probably shouldn't unless you really want to.

Year 10 Student – Independent School

Teachers may discourage people from taking subjects that they feel like they're going to really struggle with. But at the end of the day it's still the pupil's choice, even if they are going to struggle.

Although students did generally trust their teachers' advice, some expressed concerns that teachers might be biased towards their own subject, thus making advice seem less helpful.

Year 10 Student – Comprehensive School

I think the teachers are always biased. They tell us they're not but they're always going to be biased on if you're going to take their subject, obviously they want to get best grades for their reputation.

In one school, students believed that the advice they received was particularly biased, with teachers intending to improve the image of the school by encouraging students to choose the 'academic' options, at the expense of the other less traditional subjects.

Year 10 Student - Comprehensive School

It's not even like what you're best at, they push you to be one person. We've all been pushed to do the same thing... I do want you to include that they push us all to be the same person. We have no individuality... [Imitating a teacher:] "This is one of our academic students who get As in science and history, and can speak fluent French".

Although mostly appreciating the information received from teaching staff, there were mixed feelings as to the helpfulness of careers advisors. Some students appreciated receiving advice around which subjects they needed for their preferred careers. However, others did not like the fact that their careers advisor did not seem to know them personally, and so the advice they received did not seem to be tailored for them as an individual.

Year 9 Student – Comprehensive School

I went against what the career adviser said to me. [I] went with what my teacher said, not my careers adviser, because again she doesn't know me. She doesn't know what I'm doing, she doesn't know my levels.

Advice received from parents

Although parents were not interviewed during the course of this study, some insights were gained indirectly through the statements made by students and teachers. As before, it seems as though parents' advice was shaped by a triad of perceptions: difficulty, enjoyment, and usefulness. Some students reported that they were advised to avoid subjects which their parents believed were difficult. Teachers also recognised that parents' perceptions of subject difficulty may be passed down to

students, despite the fact that each student may have different subject strengths to that of their parents. However, like with the advice received from teachers, although students may have taken their parents' views into account, they were often willing to overlook this advice should they have a difference of opinion.

Year 9 Student – Grammar School

My mum has told me not to take two high maintenance subjects, like art and DT because they are very high maintenance and they put in a lot of time. But if that's what I want to do then I'll probably still do it.

Comprehensive School Teacher

[Parents] remember what they found difficult and what older siblings and things have found difficult. So they all have their own preconceptions about subjects. If mum found maths really difficult, we often find that the kid, even if they could be good at it, thinks it's difficult. It's that sort of passing on of fear, isn't it?

Students also recognised that their parents may have misconceptions about certain subjects, or that their views and experiences may be outdated. This again suggests that students did not always take their parents' advice on board.

Year 12 Student – 6th Form College

My mum and dad were like 'A-levels are easy, just add two of them on and then you'll be fine, you'll be able to get into [university]'. I was like 'mum, you don't understand, it's hard'.

Year 12 Student – Grammar School

I think it's hard for them to understand because they're not in our shoes. So when we say something's hard they just say well we were in your position at one stage. But what was hard back then might be completely different to what's hard now. So I think it's all about the perspective, the situation you're in.

Like teachers and students, parents also seemed to be concerned with enjoyment, encouraging their children to take subjects that they would enjoy, and avoid those that they would not. However, this advice was not always based upon their children's interests or experiences, but was sometimes based upon their own.

Year 12 Student – 6th Form College

My mum used to be history teacher and she managed to convince me not to take history. She was like, 'you'd hate it, you'd completely and utterly hate it'. And I was, like, OK.

Parents were also concerned about what would be most useful for their children; especially which qualifications would give them the greatest chances in terms of their future education or career. In some cases, students and teachers believed that usefulness was the only concern for parents, at the expense of a consideration of difficulty, which put pressure on students to take subjects that they may have struggled in. In other cases, parents discouraged students from choosing potentially enjoyable subjects that they saw as less worthwhile.

6th Form College Teacher

We're just fighting a losing battle against parents that are pushing kids to do a science. And then they start and realise that it's hard and then they drop out or they get stuck in a subject they can't do and they fail.

6th Form College Teacher

[Parents] just see all this nonsense in the news all the time about things like media studies is the easier subject, things like that, and they think they're not worth the paper they're written on. But at the end of the day an A level is an A level regardless of the subject and it's worth the same number of UCAS points.

Year 11 Student – Comprehensive School

My parents pushed me to do subjects that are seen as harder because like even though I've said that I wanted to do stuff like photography and stuff in the past and they're like no, just it's not worth it. It's not going to help you in any way.

Parents' concerns of usefulness seemed to be a particular issue for certain demographics. For example, Independent and grammar school teachers believed that unrealistic ambition was a particular issue for them, as parents held strong expectations for these school types. In particular, these parents held the expectation that their children should be taking 'academic' subjects, which were not always the most appropriate choices to make. At least one teacher from half the schools in the sample (across all school types) also noted that this seemed to be more common in Asian families, whereby parents often had very high ambitions for their child (eg to become a doctor or lawyer).

Independent School Teacher

I think [parents] overlook the difficulty. I also think to some degree within our sector and our particular demographic of parents is there's an expectation of miracle working: I'm paying for these results; you'll get them for them!

Grammar School Teacher

There's still a huge amount of parents that might perceive the school as a factory for a doctor... I think parents think that if their children come here they'll go on to great things, and those great things are very often scientific or medical or dentistry.

Finally, several students believed that the advice they received from their parents was somewhat biased towards their parents' own perceptions or experiences, relating to their perceptions of difficulty, enjoyment, and/or usefulness, rather than the perceptions and experiences of the student.

Year 12 Student – Independent School

I think that's more parents again, like I think if your parents have done those subjects and they've ended up in a good job they'll try to push you towards those subjects as well, because they want you to do well, as well as them, so they push you into subjects I think.

Year 9 Student – Grammar School

My parents are both teachers, my mum's a music teacher and my dad's a chemistry teacher. They think their subjects are really easy, and that I should get good grades in them. But sometimes I find it really hard in both of those.

Advice received from other students (including siblings)

Although most students turned more often to their teachers and parents for advice, they did also seem to value the opinions of those who already had experience of taking certain subjects, such as older friends or siblings. These were seen as useful sources of insight into how difficult certain courses would actually be.

Year 12 Student – 6th Form College

I was going to take creative writing, and then I just heard lots of people talking about how much it was actually really difficult. And then I heard about what you actually had to do in it, and I was like no that just sounds painful.

Year 10 Student – Comprehensive School

I spoke to a couple of people in the year above and my sister as well because she chose a couple of the same ones and they just told me like how hard and what were some of the tests and the controlled assessments and stuff.

5 Discussion

The overwhelming message arising from throughout the results section is that students' subject choices appear to be primarily driven by a combination of 3 different concerns: subject difficulty, enjoyableness, and usefulness. This echoes those conclusions drawn from several pieces of past research (Foskett et al., 2004; Garratt, 1986; Jin et al., 2011; Tripney et al., 2010; Vidal Rodeiro, 2007; Weeden, 2007). Thus, to answer the question posed by the title of this report, subject choices and perceptions of subject difficulty do appear to be linked, but this link is also dependent upon whether each subject is seen to be enjoyable and useful. Perhaps the most notable conclusion to draw is that perceptions of subject difficulty might be the lesser of these three concerns, as both teachers and students agreed that they are more driven by enjoyment and usefulness than perceptions of difficulty (cf Springate et al., 2008, who deemed enjoyment and future ambitions to be 'high influence factors', and difficulty to be a 'low influence factor'). The majority of students also stated that when they found a subject useful and/or enjoyable, they were often willing to overlook how difficult they thought it was (within reason). Nevertheless, consistent with previous research (Foskett et al., 2004; Garratt, 1986; Jin et al., 2011; Tripney et al., 2010), students did at least partially base their decisions on which subjects they thought they would not find too difficult. Therefore, although this determinant of subject choices is perhaps not as great as previous concerns have suggested, the current findings do support the notion that students' decisions are affected by perceptions of subject difficulty in several different ways.

Firstly, students agreed that they made their decisions with subject difficulty in mind. Consistent with prior findings/concerns (see Section 2), some students did acknowledge that they chose certain subjects because they believed that they would find those subjects easier than others. These perceptions were partly dependent upon various features of each course (eg how much coursework it contained), how easy it was to relate to the subject content, and the advice that they received from others. Importantly, although occasionally paying attention to commonly held notions of inter-subject comparability, students paid most attention to notions of person-specific difficulty (ie in a more subjective sense), and played to their individual strengths when making their decisions. Although this suggests that subject choices are heavily individualised, it stands to reason that if a greater number of students find certain subjects to be more difficult than others (eg physics; see Coe et al., 2008, sec. 4.1), a greater number of students will avoid choosing those subjects. This therefore does support the concerns raised in the introduction that the relatively low numbers of students in STEM subjects and modern foreign languages might be at least partly due to students' perceptions of the difficulty of those subjects.

Secondly, students were often prohibited from taking certain subjects at A level by their school's policies. Entry criteria policies were often implemented that prevented lower ability (according to their GCSE grades) students from accessing certain

'difficult' courses. These policies were sometimes driven by accountability scores, to ensure that students were able to achieve the highest possible outcomes in the subjects they chose. Teachers' decisions over which subjects to offer to their students were also sometimes affected by their perceptions of subject difficulty. For example, some schools had elected not to offer certain 'difficult' subjects, again meaning that students were prevented from choosing to study those fields of potential interest, because they appear to be too difficult. The use of these kinds of behaviours has also been noted by Ofsted, who recently announced that they will be conducting an investigation into this issue (TES, 2017).

Thirdly, students received advice on their decisions from various sources, and were sometimes discouraged from choosing subjects that other people believed would be too difficult for them. I have primarily focussed upon the advice given by teachers in this current research, but students also acknowledged the input of their parents, peers, and siblings. Although most of the advice given by teachers was tailored to each student's personal strengths (as they perceived it), given that many teachers believed that some subjects are genuinely more difficult than others, it is quite possible that they would discourage a greater number of students from taking those subjects. For example, they might expect a higher level of competency in a 'difficult' subject before they would consider that to be one of a student's 'strengths', meaning that more students might be discouraged from taking it. Teachers also commented that they sometimes had to warn students that their ambitions may be unrealistic, partly because students might hold some misconceptions about how difficult certain subjects are. Again, because some teachers believed that some subjects are more difficult than others, they may recognise more "misconceptions" in, and therefore issue more warnings to, students choosing 'harder' subjects. Finally, teachers did also occasionally discourage students from making certain choices because a failure to achieve high grades could have negative consequences for the school's performance measures (cf Jin et al., 2011; Perryman et al., 2011; Pye Tait Consulting, 2014; Rowbottom, 2013). Each of these points may again support the proposal that a relatively low number of students are choosing to study STEM and language subjects due to perceptions of difficulty, because teachers are discouraging more students from choosing those subjects in particular.

As these findings support the relationship between perceptions of subject difficulty and subject choices, one might suggest that lowering grading standards in those subjects commonly perceived to be 'difficult' may help to encourage greater student uptake of those subjects. However, as mentioned throughout this report, perceptions of subject difficulty are not students' only concerns, meaning that other approaches could also potentially achieve the same desired result. For example, efforts to enhance students' enjoyment and perceptions of usefulness in certain subjects might also help to encourage greater uptake, and organisations taking these approaches appear to have had some degree of success in this regard (eg Straw, Hart, & Harland, 2011). By doing so, more students may be willing to overlook the perceived

difficulty of certain subjects, granting them greater motivation to exert the extra effort required to achieve those 'useful' and 'enjoyable', but comparatively harder to achieve qualifications. Given that usefulness and enjoyment seem to be greater concerns for students making their subject choices, it is possible that these approaches might be able to yield greater success than those targeting perceptions of difficulty. However, this requires further investigation, as it is unclear how many students find certain subjects prohibitively difficult, and therefore would not feel able to choose them, no matter how enjoyable or useful they may be.

As a final comment, it is worth noting that students are not just being discouraged from choosing 'harder' subjects; they are also being discouraged from choosing subjects that are commonly labelled as being 'easier'. Some teachers in the current sample guided higher ability students away from subjects such as media studies, because such choices were seen to be less useful than more 'academic' options. Some students and parents also seem to be concerned that less traditional choices might be less useful, favouring subjects appearing in the list of facilitating subjects set by the Russell Group (2015) of universities. School policies might send the same message, which tended to emphasise traditional subjects included within the EBacc and Progress 8 accountability measures. Subjects perceived as easier also tend to attract lower social status, which again put some students off from choosing them. Hence, high-ability pupils may be disincentivised to pursue creative subjects and careers. It may also impact on student experience, if students choose options that they may lack motivation for, or may not be well suited to, because their own strengths/interests fall outside of those subject areas deemed more important within the current policy context.

5.1 Limitations and areas for future research

Certain limitations may prompt the need for further research:

Firstly, although fairly broad ranging sample in terms of school types and geographical locations was achieved, it is nevertheless possible that this small sample of schools (in relation to the total number of schools in England) was not representative of national opinions and practices. More work could be done to explore differences between school types and schools with different profiles, especially those not included here. For example, no schools under 'special measures'⁸ were recruited, which may be particularly driven by accountability scores. There is also the possibility of selection bias, meaning that certain behaviours and policies were not captured by this research, as schools self-selected to take part. Schools engaging in potentially unethical practices were perhaps unlikely to agree to

⁸ Schools may become subject to intervention if they are deemed to require 'special measures' following an Ofsted inspection.

participate. To address these limitations, the current findings could be used as a basis for confirmatory work on a larger sample of students and schools.

Secondly, given that we are currently undergoing a time of change for GCSEs and A levels (Ofqual, 2015a, 2015b), it is possible that perceptions of difficulty in certain subject areas may change in the coming years. For example, the current reforms may mean that the demands of some subjects are affected more than others, and therefore the general 'rank order' of subjects in terms of their perceived difficulty may change. Nevertheless, although students may begin to make different absolute choices, there is no reason to assume that the motivations that drive those choices (ie the combination of perceived difficulty, enjoyment, and usefulness) would also change in response to these reforms.

Thirdly, although the views of teachers were considered in depth, other important sources of influence (eg parents, siblings, and friends) were not spoken to, and so their perceptions and motivations were only gathered indirectly through our discussions with teachers and students. Readers should therefore interpret this portion of our results with some caution, as students and teachers may have misrepresented or misunderstood the motivations behind the advice that parents, siblings, and friends gave. Parents in particular seem to be a key source of advice for students (Vidal Rodeiro, 2007), and so future research should aim to complement the current project by taking their views into greater account. This might be particularly important given that the advice given by parents may have a greater influence than teachers for some students (Foskett et al., 2004).

Finally, there are some potentially influential factors that have not been considered here. For example, various beliefs about the self may interact with perceptions of difficulty, usefulness, and enjoyment. Although some time has been spent exploring students' perceptions of subject difficulty, less attention has been paid towards their perceptions of their own academic abilities in these subjects. Bandura et al. (2001) reported that perceived academic self-efficacy influences young persons' career trajectories, meaning that students with low self-efficacy may be less likely to enter themselves into difficult subjects because they do not believe in their ability to do well in those subjects, nor the careers that such choices would lead to. This is also a key premise of the theory of planned behaviour⁹ (Ajzen, 1991), which states that behavioural intentions (eg intended subject choices) are at least partly based upon perceptions of self-efficacy. Bandura and Schunk (1981) also found that perceived self-efficacy in a mathematics task was correlated with the likelihood of choosing to partake in future mathematics tasks, suggesting that self-efficacy may interact with subject interest or enjoyment. Low self-esteem can also discourage students from taking harder subjects, whereas high work ethic can have the opposite effect

⁹ See Taylor (2015) for a lengthier discussion of this theory in relation to subject choices.

(Mendolia & Walker, 2014). Each of these beliefs about the self may further contribute the decision making process outlined in Figure 1, and may therefore be attractive targets for further research.

6 Conclusions

In summary, one can conclude from this research that perceptions of subject difficulty do appear to be linked with subject choices, but they are not the only, nor do they appear to be the main driver of decision making. Specifically, although students may be motivated (by themselves and their teachers in particular) to avoid subjects that they find difficult, they are nevertheless often willing to choose to study such subjects when they enjoy them and/or believe that they are useful for their futures. Additional factors not investigated here may further interact with these relationships, adding greater complexity to the decision making process. By continuing research into this field, we can add to our understanding of how and why students make their decisions, potentially enhancing our ability to encourage greater uptake in 'key' subject areas.

References

- Adey, K., & Biddulph, M. (2001). The Influence of Pupil Perceptions on Subject Choice at 14+ in Geography and History. *Educational Studies*, 27, 439–450. <http://doi.org/10.1080/03055690120071894>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. [http://doi.org/10.1016/0749-5978\(91\)90020-T](http://doi.org/10.1016/0749-5978(91)90020-T)
- ATKearney. (2016). *Tough choices: The real reasons A-Level students are steering clear of science and maths*. Retrieved from <http://yourlife.org.uk/tough-choices-the-real-reasons-a-level-students-are-steering-clear-of-science-and-maths/>
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development*, 72, 187–206. <http://doi.org/10.1111/1467-8624.00273>
- Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, 41, 586–598. <http://doi.org/10.1037/0022-3514.41.3.586>
- Blenkinsop, S., McCrone, T., Wade, P., & Morris, M. (2006). *How do young people make choices at 14 and 16?* (DfES Research Report RR773). London: Department for Education and Skills. Retrieved from <http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/RR773.pdf>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <http://doi.org/10.1191/1478088706qp0630a>
- Brown, M., Brown, P., & Bibby, T. (2008). "I would rather die": Reasons given by 16-year-olds for not continuing their study of mathematics. *Research in Mathematics Education*, 10, 3–18. <http://doi.org/10.1080/14794800801915814>
- CaSE. (2014). *Improving Diversity in STEM*. London, UK: Campaign for Science and Engineering. Retrieved from <http://www.sciencecampaign.org.uk/resource/ImprovingDiversityinSTEM2014.html>
- Clemens, S. (2011). *The English Baccalaureate and GCSE choices*. (DfE Research Brief DFE-RB150). London: Department for Education. Retrieved from <https://www.gov.uk/government/publications/the-english-baccalaureate-and-gcse-choices-brief>
- Coe, R. (2007). Common Examinee Methods. In P. E. Newton, J. Baird, H. Goldstein, H. Patrick, & P. Tymms (Eds.), *Techniques for monitoring the comparability of examination standards* (pp. 331–367). London: QCA.
- Coe, R. (2008). Comparability of GCSE examinations in different subjects: An application of the Rasch model. *Oxford Review of Education*, 34, 609–636. <http://doi.org/10.1080/03054980801970312>
- Coe, R. (2010). Understanding comparability of examination standards. *Research Papers in Education*, 25, 271–284. <http://doi.org/10.1080/02671522.2010.498143>

- Coe, R., Searle, J., Barmby, P., Jones, K., & Higgins, S. (2008). *Relative difficulty of examinations in different subjects*. Durham: CEM Centre. Retrieved from <http://www.cem.org/attachments/score2008report.pdf>
- Darling, J., & Glendinning, A. (1996). Patterns of subject choice: a local study. In *Gender matters in schools: pupils and teachers* (pp. 96–118). London: Cassell.
- Dearing, R., & King, L. (2006). *Languages review*. Nottingham, UK: Department for Education and Skills. Retrieved from <http://dera.ioe.ac.uk/7613/1/LanguageReview.pdf>
- Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist*, 26, 325–346. <http://doi.org/10.1080/00461520.1991.9653137>
- Department for Education. (2015). *Progress 8 measure in 2016: Guide for maintained secondary schools, academies and free schools*. London: Department for Education. Retrieved from <https://www.gov.uk/government/publications/progress-8-school-performance-measure>
- Fazackerley, A., & Chant, J. (2008). *The hard truth about “soft” subjects: Improving transparency about the implications of A-level subject choice*. Policy Exchange Research Note. Retrieved from <http://www.policyexchange.org.uk/publications/category/item/the-hard-truth-about-soft-subjects>
- Foskett, N., Dyke, M., & Maringe, F. (2004). *The influence of the school in the decision to participate in learning post-16*. (DfE Research Report RR538). London, UK: Department for Education. Retrieved from <http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/RSG/publicationDetail/Page1/RR538>
- Garratt, L. (1986). Gender differences in relation to science choice at A-level. *Educational Review*, 38, 67–77. <http://doi.org/10.1080/0013191860380107>
- Gov.UK. (2016). Types of school. Retrieved February 24, 2016, from www.gov.uk/types-of-school/overview
- House of Lords. (2006). *Science and technology - tenth report*. London, UK: House of Lords. Retrieved from <http://www.publications.parliament.uk/pa/ld200506/ldselect/ldsctech/257/25702.htm>
- Jin, W., Muriel, A., & Sibieta, L. (2011). *Subject and course choices at ages 14 and 16 amongst young people in England: Insights from behavioural economics*. (DfE Research Report DFE-RR160). London, UK: Department for Education. Retrieved from <https://www.gov.uk/government/publications/subject-and-course-choices-at-ages-14-and-16-amongst-young-people-in-england-insights-from-behavioural-economics>
- Jones, B., Philips, D., & van Krieken, R. (2011). *Inter-Subject Standards: An Insoluble Problem?* Manchester, UK: Centre for Education Research and Policy. Retrieved from <https://cerp.aqa.org.uk/research-library/inter-subject-standards-insoluble-problem>
- Mendolia, S., & Walker, I. (2014). The effect of personality traits on subject choice and performance in high school: Evidence from an English cohort. *Economics of*

- Education Review*, 43, 47–65. <http://doi.org/10.1016/j.econedurev.2014.09.004>
- Myers, H. (2006). *The “severe grading” of MFL grades at GCSE and A level*. London, UK: Association for Language Learning. Retrieved from http://www.all-london.org.uk/all_position_statement.htm
- Newton, P. E. (2010). Contrasting conceptions of comparability. *Research Papers in Education*, 25, 285–292. <http://doi.org/10.1080/02671522.2010.498144>
- Newton, P. E. (2012). Making sense of decades of debate on inter-subject comparability in England. *Assessment in Education: Principles, Policy & Practice*, 19, 251–273. <http://doi.org/10.1080/0969594X.2011.563357>
- Nuttall, D. L., Backhouse, J. K., & Willmott, A. S. (1974). *Comparability of standards between subjects*. Schools Council Examinations Bulletin 29. London: Evans Brothers Limited. Retrieved from <https://www.gov.uk/government/publications/comparability-of-standards-between-subjects-nuttall-backhouse-and-willmott-1974>
- Ofqual. (2014). *Review of quality of marking in exams in A levels, GCSEs and other academic qualifications: Final Report*. Coventry, UK: Office of Qualifications and Examinations Regulation. Retrieved from <https://www.gov.uk/government/publications/quality-of-marking-in-gcses-and-a-levels>
- Ofqual. (2015a). AS and A level changes: A summary. Retrieved April 14, 2016, from <https://www.gov.uk/government/publications/as-and-a-level-changes-a-summary>
- Ofqual. (2015b). GCSE changes: A summary. Retrieved April 14, 2016, from <https://www.gov.uk/government/publications/gcse-changes-a-summary>
- Ofqual. (2015c). *Inter-Subject Comparability: A Review of the Technical Literature - ISC Working Paper 2*. Coventry, UK: Office of Qualifications and Examinations Regulation. Retrieved from <https://www.gov.uk/government/publications/inter-subject-comparability-a-review-of-the-technical-literature>
- Ofqual. (2015d). Inter-subject comparability: Research documents. Retrieved April 14, 2016, from <https://www.gov.uk/government/collections/inter-subject-comparability-research-documents>
- Ofqual. (2015e). *Inter-subject comparability of examination standards in GCSE and GCE - ISC Working Paper 3*. Coventry, UK: Office of Qualifications and Examinations Regulation. Retrieved from <https://www.gov.uk/government/publications/inter-subject-comparability-of-exam-standards-in-gcses-and-a-levels>
- Osborne, J., Simon, S., & Collins, S. (2003). Attitudes towards science: A review of the literature and its implications. *International Journal of Science Education*, 25, 1049–1079. <http://doi.org/10.1080/0950069032000032199>
- Perryman, J., Ball, S., Maguire, M., & Braun, A. (2011). Life in the pressure cooker – School league tables and English and mathematics teachers’ responses to accountability in a results-driven era. *British Journal of Educational Studies*, 59, 179–195. <http://doi.org/10.1080/00071005.2011.578568>
- Pye Tait Consulting. (2014). *Assessment Practices in Schools*. Unpublished Report.
- Roberts, G. (2002). *Set for success: The supply of people with science, technology, engineering and mathematics skills*. London: HM Treasury. Retrieved from

http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/d/robertsreview_introch1.pdf

- Robson, C. (2002). *Real world research* (2nd ed.). Oxford, UK: Blackwell Publishing.
- Rose, J., & Baird, J.-A. (2013). Aspirations and an austerity state: young people's hopes and goals for the future. *London Review of Education*, 11, 157–173. <http://doi.org/10.1080/14748460.2013.799811>
- Rowbottom, N. (2013). A-Level subject choice, systematic bias and university performance in the UK: The case of accounting. *Accounting Education*, 22, 248–267. <http://doi.org/10.1080/09639284.2013.799840>
- Russell Group. (2015). *Informed Choices: A Russell Group guide to making decisions about post-16 education*. London: The Russell Group.
- Ryrie, A. C., Furst, A., & Lauder, M. (1979). *Choices and chances: A study of pupils' subject choices and future career intentions*. London, UK: Hodder and Stoughton for the Scottish Council for Research in Education.
- Smith, A. (2004). *Making mathematics count*. London: The Stationary Office. Retrieved from <http://www.mathsinquiry.org.uk/report/index.html>
- Smith, E. (2011). Staying in the science stream: patterns of participation in A-level science subjects in the UK. *Education Studies*, 37, 59–71. <http://doi.org/10.1080/03055691003729161>
- Springate, I., Harland, J., Lord, P., & Wilkin, A. (2008). *The factors affecting A-level and undergraduate subject choice in physics and chemistry by ethnic group*. Slough, UK: NFER. Retrieved from https://www.nfer.ac.uk/publications/AUC01/AUC01_home.cfm
- Straw, S., Hart, R., & Harland, J. (2011). *An evaluation of the impact of STEMNET's services on pupils and teachers*. Slough, UK: NFER. Retrieved from <https://www.nfer.ac.uk/nfer/publications/SEOZ01/SEOZ01.pdf>
- Taylor, R. C. (2015). Using the theory of planned behaviour to understand students' subject choices in post-compulsory education. *Research Papers in Education*, 30, 214–231. <http://doi.org/10.1080/02671522.2014.880732>
- TES. (2017). Ofsted launches investigation into “scandal” of schools gaming the system. Retrieved March 28, 2017, from <https://www.tes.com/news/school-news/breaking-news/ofsted-launches-investigation-scandal-schools-gaming-system>
- Tripney, J., Newman, M., Bangpan, M., Niza, C., MacKintosh, M., & Sinclair, J. (2010). *Subject Choice in STEM: Factors Influencing Young People (Aged 14-19) in Education about STEM Subject Choices - A systematic review of the UK literature*. London, UK: The Wellcome Trust. Retrieved from <http://www.wellcome.ac.uk/About-us/Publications/Reports/Education/WTX063080.htm>
- Vidal Rodeiro, C. L. (2007). *A Level subject choice in England: Patterns of uptake and factors affecting subject preferences*. Cambridge, UK: Cambridge Assessment. Retrieved from http://www.cambridgeassessment.org.uk/ca/digitalAssets/114182_Survey_Report_-_Final.pdf
- Watts, C., & Pickering, A. (2005). Some reasons behind the drop-out from German

foreign language study between AS and A2 levels. *The Language Learning Journal*, 32, 18–26. <http://doi.org/10.1080/09571730585200151>

Weeden, P. (2007). Student's perception of geography: Decision making at age 14. *Geography*, 92, 62–73. Retrieved from <http://www.jstor.org/stable/40574309>

Appendices

Appendix A - methodology

Design

A qualitative design was chosen because it would provide a rich source of information, especially with regards to how the balancing of competing concerns is handled. This allowed us to add to the current literature, which has mainly consisted of numerical survey data.

One-to-one interviews were used to gather the views of teachers, in order to facilitate an environment that allowed complete openness (eg more junior teachers may have felt under pressure to not discuss certain issues in front of members of the senior leadership team). Teachers may have been more confident than students in discussing these issues at length on a one-to-one basis. Students expressed their views in focus groups, rather than one-to-one interviews, for three reasons. Firstly, this was decided on logistical grounds, as seeing individual students would have caused repeated disruptions to classes as they left from, and returned to, their lessons. Secondly, seeing students in groups allowed us to gather the views of more students in less time, given that the same concerns surrounding openness and honesty were less relevant. Thirdly, it was felt that focus groups would give students greater confidence and allow them to discuss these issues at greater length than an individual student might feel comfortable to do (especially for younger year groups). Although the opposite might have been true (that some students might become inhibited in the presence of their peers), it was felt that focus groups would be of benefit to a greater number, and that the less forthcoming students could still be encouraged to express their views with some prompting.

Recruitment

Participants were recruited from a variety of schools and 6th form colleges via purposive sampling, with the aim of holding discussions with students and teachers from a wide range of demographic backgrounds and geographical locations. Letters and emails were sent to the head teachers of 180 schools in England over a period of 3 months. Each school was offered financial compensation (£200) in exchange for their participation (individual participants received no compensation). Twenty schools initially expressed an interest in the study, and 12 eventually took part.

A selection of school types and locations were achieved, and the final sample consisted of 5 comprehensive schools¹⁰, 2 grammar schools, 2 independent schools, and 3 6th form colleges. These schools were located within 9 English counties/metropolitan areas, including Gloucestershire, Greater Manchester, Herefordshire, Lincolnshire, London, Nottinghamshire, Staffordshire, Warwickshire, and the West Midlands.

Table 1 shows the total number of teachers and students that took part, broken down by school type. Although ultimately each school decided which teachers and students would be offered to us, I requested to talk to one or two teachers from the senior leadership team (SLT; including the head teacher, deputy head teachers, and assistant head teachers), who would have greater insight into school policy, and two or three other teachers who were responsible for providing advice to students on what they might choose to study at GCSE and/or A level (eg personal or year-group tutors). The purpose of this sampling approach was to recruit teachers from a range of levels of superiority, and those who likely had the greatest influence on students making their subject choices.

Table 1. *Number of teachers and students from each school type.*

| School type | Number of teachers | | Number of students | |
|------------------|--------------------|---------|--------------------|---------|
| | SLT | Non-SLT | GCSE | A level |
| Comprehensive | 7 | 10 | 27 | 23 |
| Grammar | 5 | 6 | 13 | 15 |
| Independent | 5 | 4 | 10 | 11 |
| 6th form college | 3 | 9 | - | 13 |
| Total | 20 | 29 | 50 | 62 |

Note. ‘GCSE’ includes year 9 students discussing the choices they were currently making, and year 10 students discussing the choices that they made last year.

¹⁰ Comprehensive schools can be further subdivided, depending on how they are governed (eg see Gov.UK, 2016). Of the comprehensive schools recruited for this project, one was a community school (governed by the local authority), one was a foundation school (where the governing body had greater freedom over the running of the school), one was a voluntary aided school (where a religious organisation contributed to the funding and had an influence over the running of the school), and two were sponsor-led academies (where the school is managed by an external organisation).

Similarly, 'A level' includes year 11 students discussing the choices they were currently making, and year 12 students who made their choices last year.

The primary contact for each school (usually a member of the SLT) was also asked to put together two focus groups of students. These teachers selected pupils themselves, but were encouraged to select students from a range of backgrounds in terms of subjects studied and levels of attainment. In each school, the researcher typically spoke to one group of students about their GCSE choices (either Year 9s making their choices now, or Year 10s who made their choices last year) and one group of students about their A level choices (either Year 11s making their choices now, or Year 12s who made their choices last year). Given their remit, GCSE choices were not discussed at 6th form colleges. The size of these focus groups ranged between 3 and 10 students, with a mean group size of 6.

Interview/focus group schedules

All interviews and focus groups were conducted between January and March, 2016. Although 2 researchers were involved in the data collection for this project, all interviews and focus groups were facilitated by one researcher at a time.

Before each interview/focus group began, all participants were informed about the nature of the study and what the key topics of discussion were to be. Written consent was gained from each participant and they were made aware that discussions would be audio recorded, and that they could decide to stop the interview/focus group at any point. In the focus groups, students were asked to respect each other's views but were encouraged to voice their opinions should they differ from what someone else might have said.

Semi-structured modes of data collection were used in favour of structured or unstructured modes, as these allowed the researchers to maintain a degree of control, whilst allowing flexibility in the question order and not restricting the discussions to the researchers' preconceived understanding of these issues (therefore allowing for important but unforeseen topics to be discussed). Interview/focus group schedules consisting of open-ended questions¹¹, probes, and prompts were developed and followed, but questions were omitted (eg when not relevant for certain participants) or added (eg to follow up on a certain response) where appropriate. These schedules, which can be found in Appendix B, were

¹¹ Open-ended questions were favoured over closed (e.g., yes/no) or scale (e.g., strongly disagree to strongly agree) as they allow for greater flexibility, greater depth of response, encourage rapport, and can uncover unanticipated opinions (Robson, 2002, pp. 275–276).

reviewed and amended by other Ofqual researchers before the study began, to ensure good coverage of the topic area.

Teachers were first asked about their thoughts on the variation of subject difficulty, and then whether their school had any policies in place that might guide the choices students can make (eg entry criteria or option blocks). They were then asked about the advice that they gave to their students regarding subject choices, focussing on whether their perceptions of subject difficulty feature in this advice. Finally, they were asked whether they thought the perceptions of subject difficulty held by students and their parents had an impact on students' subject decision making. Issues relating to either GCSEs or A levels (whichever the teacher was most involved with) were discussed first, followed by issues relating to the other level of study.

Students were first asked about their perceptions of subject difficulty, and then how these perceptions might have influenced their subject choices. They were also asked whether other features of a course (eg enjoyment or perceived usefulness) might make them care less or more about how difficult a certain subject might be. They were finally asked how other people might have influenced their decisions, including (but not limited to) teachers and parents, focussing on whether they thought these sources of influence were driven by any perceptions of subject difficulty. Unlike teachers, students were only asked to discuss issues relating to either GCSEs or A levels, depending on their current level of study.

For scheduling purposes, 45 minutes to an hour was suggested by the lead researcher for each discussion, although some teachers were only available for a shorter duration due to other school commitments. The mean length for the teacher interviews was 38 minutes (range: 16 – 58 minutes) and the mean length for the student focus groups was 30 minutes (range: 20 – 51 minutes).

Method of analysis

Audio recordings were transcribed by an external transcription company, and a sample of the transcriptions was checked for accuracy by the lead researcher. 'NVivo 10' software for Windows was used to organise, code, and analyse the transcripts.

The method of analysis (and the remainder of this paragraph) was largely based upon the guidance provided by Braun and Clarke (2006). A thematic analysis approach was chosen as it is a flexible yet detailed analytic technique. Analysis was essentially 'realist' and 'semantic' in nature, aiming to capture the perceived realities of experiences explicitly stated by participants. This approach was chosen to identify the consciously held perceptions of participants, and how these perceptions consciously (ie explicitly) shaped their behaviour. Themes were selected and structured using a largely 'top-down' or theoretical approach, meaning that coding was approached with specific questions in mind (ie those described in Section 3).

Sub-themes were identified by the researchers through a thorough reading of each transcript. Once a preliminary thematic map (ie the themes, subthemes, and relationships between them) had been produced, the transcripts and coded items were reviewed to check and improve upon the thematic map's validity.

Appendix B – Interview/focus group schedules

Teacher interview schedule

Icebreaker Activity:

- i. To start off, could you tell me a bit about yourself as a teacher?
 - a. How long have you been a teacher?
 - b. What subjects do you teach?
 - c. How long have you been at this school?
 - d. [How long have you been in the senior management team?]
- ii. And could you briefly tell me a bit about your school/college and the kind of students you have here?

-----Repeat the following twice. Once for GCSE, once for A level-----

General Perceptions:

- iii. Across the range of subjects that are studied at [GCSE/A level], could you tell me a bit about how much you think they vary in terms of how difficult or easy they are.
 - a. How much variation in difficulty do you think there is across the whole range of subjects studied at [GCSE/A level]?
 - i. Eg, is there a big difference between the hardest and easiest?
 - b. What do you base your thoughts on? I.e., what makes a subject difficult?
 - i. Do you focus more on content or assessment?
 - ii. Have you looked at any other information – for example on the internet or paper documents/reports?
 - c. Do you think that there are any differences between what subjects you think are difficult and what subjects your students think are difficult?
 - d. [Second round only] – Do you think GCSEs and A levels are equally difficult?
 - i. Is this the same across all subjects?
- iv. Often we find that different subjects attract different levels of status. For example, some subjects attract more respect or more recognition than others. Other subjects attract less status. Do you think that the status of a subject is related to how difficult people think it is?

School Policies and Curriculum Offer:

- v. Because all schools work slightly differently, could you tell me what policies or practices your school has in place that guide the options that students can take at [GCSE/A level]? These might be formal or informal policies and practices.
 - a. Are there any [GCSE/A level] subjects which are deliberately not offered by your school and why?
 - b. Are any subjects compulsory?

- c. How many [GCSE/A level] subjects are offered?
 - d. Do you have option blocks (eg, student can only take either history or geography)?
 - e. Do you have pathways (eg, only top set can do single science) or other entry requirements?
 - f. Do you take perceptions of subject difficulty into account when making these decisions?
- vi. Do you ever pay attention to which exam boards might be easier than others? Eg, do you ever change to an easier specification within the same subject?

Advice to Students:

- vii. When you are talking to your students about their subject choices, do your thoughts about the difficulty or easiness of certain subjects affect the advice you give?
- a. Do you ever consciously direct your students towards taking difficult or easy subjects, and why?
 - b. Does this advice change depending on which student you are giving it to?
 - i. E.g., does it depend on the apparent ability of each student?
 - c. How do you balance out the ambitions and career goals a student might have with your perceptions of subject difficulty or ease?
 - i. E.g., if a student wants to pursue a certain career, but you think that might be too difficult for them, what do you advise them to do?
 - ii. What about if a student was picking something that you felt was too easy for them?
- viii. For all of the systems that you have in place around advice and guidance and setting subject options – those based on perceptions of difficulty or easiness – do you think that these help your [school/college] in terms of performance tables or accountability measures?
- a. [Advice & Policies covered?]
 - b. Is this a deliberate aim of policies and advice given to students?
 - i. [Advice & Policies covered?]

Thoughts on students:

- ix. I'd like to know a bit more about your students now - Those making their [GCSE/A-level] choices. Do you think that their thoughts about subject difficulty affect the choices they make?
- a. Is this the same across all levels of attainment?
 - b. Do you think that parents' perceptions of subject difficulty have an influence over the choices their children make?
 - c. Do you think your students inherit views about subject difficulty from their parents?
- x. That's everything I wanted to talk about for [GCSEs/A levels]. Do you have any other comments to make? Do you think I've missed anything important?

Student focus group schedule

[Note – The tense of questions changed depending on whether subject choices had already been made or not]

Icebreaker Activity:

- i. I'd just like to go round the room first, to break the ice a bit and to get your names for the recording. So could you just tell me your first name, and what subjects you are thinking of studying in your [GCSEs/A levels].
- ii. Just so I know how things work at your school, as a group could you talk me through the process of how you actually make your subject choices. For example, what are the key events or key deadlines and who are the key people involved?
 - a. Options evenings? Key people's jobs (eg, HoDs/tutors)? How long did you get to decide?

General Perceptions:

- iii. Out of all subjects (not just the ones you are studying), which subjects do you think are the most difficult at [GCSE/A level] and why do you think that?
- iv. On the other end of the scale then, which subject do you think are the easiest at [GCSE/A level] and why do you think that?
- v. So we've identified some subjects that you think are the hardest and easiest. Thinking about the whole range of [GCSE/A level] subjects on offer, what else do you think makes some subjects more difficult than others? [can give examples if already mentioned some]
 - a. Do you base your thoughts on anything else? For example, other peoples' opinions or how the course is assessed?
 - i. Other people's views? – friends/brothers and sisters/teachers?
 - ii. Differences in Content (eg, is the content easy to understand)?
 - iii. Differences in Assessment (e.g., different types of assessment might be harder)?
 - iv. Careers guidance/UCAS tell you anything about difficulty?
- vi. Across the whole range of [GCSE/A level] subjects, do you think that there is a big difference between the hardest subject and easiest subject, or are they quite close together in terms of difficulty and easiness?
- vii. Do you think that there are any differences between what subjects you think are difficult or easy and what subjects **your teachers** think are difficult or easy?
- viii. And how about your parents? Do they have any different thoughts?

Influence of Perceptions on Subject Choices:

- ix. Do you think your thoughts about subject difficulty or easiness affect your subject choices?

- x. Does anything [else] change how much these thoughts affect your choices?
Eg, Does anything else about a subject make you care less or more about how difficult that subject is?
 - a. Do your thoughts about the **usefulness** of certain subjects change how much subject difficulty or easiness affects your subject choices? By usefulness I mean how useful you think a subject will be for your future education or career.
 - i. [eg are you more likely to take a difficult subject if you think it will help you get in to university? Or are you less likely to take an easy subject if you think it won't be useful?]
 - b. Does your enjoyment of a subject affect how difficult or easy you think it is, and does this affect your subject choices?
 - c. Do you tend to take notice of things like your predicted grades, and does this change how likely you are to choose certain subjects?
- xi. When thinking about subject difficulty in your decision making, do you pay more attention to what you think is a difficult or easy subject **in a more general sense**, or what you think would be an easy or difficult subject for **you personally**? So, like I mentioned earlier, you might think that Music is a difficult subject for most people, but you personally find it quite easy. Which do you focus more on?
 - a. Does the other type of difficulty still influence you?
- xii. Often we find that different subjects attract different levels of status. For example, some subjects get more respect or more recognition than others. Other subjects attract less respect. Do you think that the status of a subject is related to how difficult people think it is?
 - a. Does the status of different subjects affect your decision making?

Influence/Advice from Others:

- xiii. Has anything or anyone pushed you away from choosing certain subjects because they are thought to be difficult or easy?
 - a. [eg Admissions policies, such as you need to get a certain grade in your GCSEs to be able to take a certain A level subject?]
 - b. [eg parents or teachers think something is too difficult for you?]
 - c. Why do you think they have done that?
- xiv. Opposite to that, has anything or anyone pushed you **towards** choosing a certain subject, based on how difficult or easy it is thought to be?
 - a. [eg Parents or teachers think something is easy so they make you take it?]
 - b. Why do you think they have done that?
- xv. Where do you tend to turn to most for advice when making your subject decisions?
 - a. Do you think that their advice is affected by their own thoughts about which subjects are difficult or easy?
 - b. Are your choices influenced by anyone else?
 - i. Teachers? Parents? Friends? Siblings? Other relations? Careers guidance?
- xvi. That's about everything I wanted to talk about. Can you think of anything we might have missed? Any important issues we haven't discussed?

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Any enquiries regarding this publication should be sent to us at:

Office of Qualifications and Examinations Regulation
Spring Place
Herald Avenue
Coventry CV5 6UB

Telephone 0300 303 3344
Textphone 0300 303 3345
Helpline 0300 303 3346