

# **The paradox of 'developing' employability**

**A study of physics students' engagement with their graduate prospects**

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## Abstract

Although relating directly to the lives of young people, the employability agenda and attempts to address the so-called 'STEM skills gap' do not appear to take into consideration the very people it intends to affect. This research addresses a limitation in understanding the factors that influence decision-making processes of young people as they make their way from a degree to their future trajectories. I conducted a qualitative, narrative-based longitudinal study over 18 months with eight students from the beginning of their final year on their physics degree to six months after graduation. These 'case stories' are analysed by using Margaret Archer's (2003, 2007, 2012) theoretical lens of Internal Conversations to understand everyday reflexivity in making decisions relating to career and employment. The research highlights a paradox in the expectations placed on graduates, particularly young people, as they prepare for employment. It finds that (1) rather than just the formal routes of employability development, young people's decisions about their employment and career futures are influenced by the interplay of personal and structural aspects beyond financial exchange-value of a degree. It incorporates the competing demands of employers, university and their social networks, alongside personal expectations for themselves. (2) The thesis provides an improved understanding of the impact of physics in relation to getting *any* job; here I present the concept of the 'Science Ego' which enables physicists to transition to their futures with a certain sense of confidence. (3) The findings also call for a careful consideration of the impact of geography on transitioning from a degree. Overall, the research reveals the paradoxical nature of developing employability in a perpetually changing landscape of HE which is influenced by a neoliberal form of economy. Here, the individual also takes into consideration their own fulfilment rather than only complying with job market demands.

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## Chapter 1 Introduction

Since the 1960s, industrialised countries have been reforming and expanding Higher Education (HE). The reason for doing so was to respond to changes in the economy as well as social status (and inequalities), often considered separate from HE when in fact they are inter-related (Teichler et al., 1980). The history of expansion was initially characterised by a (hu)manpower requirement forecasting (see Ahamad and Blaug, 1973) though eventually incorporated the need to consider freedom of choice in occupation, workplace and educational institution making it “primarily [an] orientation towards popular demand” (example of West Germany in Teichler et al., 1980, p.22). In the UK, the Robbins Report (1963) made explicit the relationship between HE and Employment. With the advancement of technology, in today’s neoliberal economy the markets rely less on physical labour and begin to focus on thoughts and innovation as being an important area of investment. Knowledge is thus valued and becomes currency or capital, called the ‘Knowledge Economy’. This is important to understand because, for better or worse, it has an impact on education and work. In particular, what stands out about this change is the onus being placed on the individual to tailor themselves to constant changes in the job market which is a demand for perpetual dynamism of the self, understood as ‘employability’. All the while, the subjective lives of people are neglected from the framing of this agenda.

There have been mixed responses to the employability agenda in HE in England. On the one hand, it is suggested that it will help promote individual worth based on achievement, as well as social and economic wellbeing (Knight and Yorke, 2004), and will enhance education in Learning, Teaching and Assessment (LTA) practice (Pegg et al., 2012). This view is based on the belief that developing skills is beneficial for a capable workforce and citizenry and in turn a stronger economy. In some ways, this perspective over-emphasises the importance of the economy, or rather the ‘knowledge economy’. On the other hand, there are concerns about endorsing a policy that places stress on a system within which the student is no longer a learner or engager with knowledge. They now become mere service users accessing a product in the market (Naidoo, 2003), posing a threat to the education system by granting the market power over knowledge, particularly by how the term is discursively framed (Boden and Nedeva, 2010; Dunn, 2014). Simultaneously, there is little evidence to suggest that the expansion of HE can actually have an impact on national economic performance (Mayhew et al., 2004). Amidst this turmoil, young people are repeatedly encouraged to do a degree to then give them access to a growing number of ‘graduate jobs’.

These differing perspectives reveal the (somewhat unnecessary) complexity of employability. Yet at the same time, what appears to be missing is the graduate

themselves. It is therefore at the outset that this project aimed to critique, rather than merely 'add to' the literature on employability. The objective was to highlight what is not yet known, and often hidden when thinking of education research.

A critical review of the available literature reveals that the agenda seems to favour particular behaviourisms such as the accent of the individual, or institution attended, particularly observed when employers selectively engage with (pre-1992) universities, perpetuating 'achievement' stereotypes and inequality (Moreau and Leathwood, 2006b). In fact, the implementation of the employability agenda differs in universities and is often based on the university culture and reputation. For example, elite university graduates are seen as more employable by virtue of being in their institution (Farenga and Quinlan, 2016). Curiously, the proportion of students from widening participation backgrounds is very low in elite universities, raising questions right from the point of 'access' to institutions (Boliver, 2013). This is reflective of a culture developed on campuses, and when in elite institutions, students from lower socioeconomic backgrounds have reported it being detached from the lived realities to which they are accustomed; these students describe that it feels like being in a "bubble" (Reay et al., 2009) as a result of increased individualism, and media control by the middle class (Reay, 1998; Arora, 2015), a group which itself is not appropriately defined (Power, 2001). This continues into the work place where Ashley et al. (2015) find that post-graduation, "non-educational barriers" have an impact on access to elite professions.

While these issues are integral to consider when attempting to know more about the experiences of young people, focusing on them as essentialised experience raised some concern for me. One primary concern is lack of engagement with questions about the ontological and epistemological framing of social justice. Edgerton and Roberts (2014), while attempting to clarify whether the current shuffle to employ Bourdieu to understand inequality relates the concepts of capitals or habitus, eventually present an argument for a realist framework of structures-disposition-practice. This clearly offers a better framing and in so doing presents the need to understand social experience as a process. However, rather than add to the research that employs the works of Bourdieu, I have drawn on the works of Margaret Archer thus adopting the metaphilosophy of Critical Realism.

Through the use of Archer's (2003) notion of Internal Conversations as a reflexive negotiation of the social world, it is possible to balance the role of structure and agency as understood through decision-making as a process. My concern thus far has been that literature on employability has favoured policy, employers and staff notions of how best to respond to the demands of the two aforementioned. It often assumes that young people will take paths expected of them by broader structures.

This is evident through the notions of an increase in funding for science subjects to fill a STEM skills gap, or the use of Destination of Leavers from Higher Education (DLHE - now Graduate Outcomes) statistics to act as a proxy for 'employability'. Such a framing places the onus of responding to these economic situations on the individuals, which is often misunderstood as 'choice'. This denies the individual of their agential capacity, or the ability to negotiate the social world as human beings. Simultaneously, critical perspectives that largely draw on Bourdieu in relation to research on HE in the UK can run the risk of treating structural constraints and enablements as deterministic, once again taking away the individual's agential capacity. The framework provided by Archer instead calls for the relationship to be understood as a dialectical process. This framework enables the studying of young people's transitions as a qualitative, micro-level processes of negotiations.

It helps critique the notion of a straightforward transition to filling a job market gap, which Lauder (2012) takes issue with in relation to employability, as it focuses on the economic exchange of a degree in the Knowledge Economy, upholding a Skill Bias theory. After procuring a degree, students make decisions to take their newly-fashioned post-graduate selves forward, but with a path that they define. Here, I treat the process of transitioning from a degree as a reflexive journey of decision-making rather than a series of choosing, aimed at arriving at a pre-determined or expected end point. This research focuses on the degree discipline of Physics as physicists appear to be a unique group amongst STEM as there is no direct career route. Whereas on the other hand, for example, Engineering is seen as vocational; pharmaceutical and other companies employ Chemists; Mathematicians have clear routes into finance and statistics. Although students may not end up in these roles aimed at them, there is a pathway nonetheless. This offers a good opportunity to explore how decisions can be negotiated regarding employability and career futures when a particular path is unclear, yet simultaneously being a STEM discipline, will have to confront wider debates on skills gaps. With Physics, the career options are broad, and arguably even vague. This was one of the reasons why the White Rose Industrial Physics Academy (WRIPA, 2016) was established in the Northern England region. Many Physics students were leaving STEM (and thus not addressing the so-called STEM skills gap). WRIPA was established in 2014 to highlight the vast array of career opportunities that use physics directly, with the aim to give young people a better idea of their potential future career pathways.

One of the most crucial aspects of this research is the focus on decision-making processes of young people. Therefore, this research follows the guiding aim:

*to understand the process of decision-making as undergraduate physics students negotiate their graduate prospects during their time at university, and transition to their graduate selves.*

The questions associated with this research take a step back from the managerial employability agenda to recognise the wider context in which it exists, asking:

1. *How and for what reasons do young people on a physics degree programme engage or not with employability development opportunities?*
2. *From their perspective, how do young people on a physics degree relate their degree discipline to their graduate prospects?*
3. *What influences young people's decision-making processes as they transition from their undergraduate degree in physics to their graduate career futures?*

In order to explore this, I used narrative enquiry and storying as a qualitative methodology. A majority of the literature on STEM skills gap and employability relies on quantitative understandings of trajectories from a degree. It aims to either find out what works, what doesn't work, or what more services need to be provided. This research is a departure from a service-focused view.

Although Critical Realism does not favour any particular methodology, the aim to know more about the practical lived realities of young people as they transition from their physics degree called for an in-depth understanding of experiences as they are being reflected on, and as futures are being considered and subsequently lived. This is important because it not only contributes to the dearth of qualitative research on employability, but it presents decision-making as a temporally-influenced process which will be explored close to the time at which they take place. Therefore, in order to best understand this process, the patterns of young people will be enquired into at four crucial points. The first was at the end of teaching for the first semester of final year, before their exam results. This was to be able to know about the thoughts and activities of students prior to knowing their grades. At this point, they could be engaging with their future prospects. The second point of contact was after all teaching was done for the programme. By this time, students would have had their grades from the previous semester and have a good idea of the overall outcome they might achieve. By this point, it is commonly expected that young people have a job lined up. The third meeting was following their 'formal' graduation. Here, some could have started their first graduate job and would have something to share about their experience. The fourth interview was done six months after graduation, similar to the point at which the DLHE statistics would have been taken. Here, young people are able to evaluate their experience at university as well as the activities and trajectories they took following the completion of the degree, be it employment, education, travel, or anything else. The focus is on how these young people present their reasoning, their Internal Conversations of concerns – projects – practice.

This is another novel aspect of this research as there are limited studies about the transitions from undergraduate study to work based in the UK, despite the prominence of the employability as an agenda in HE. Rather than abruptly end at the point of completion of the degree, or focus only on post-graduation activities, this research looks at the process of negotiation. As a result of this, the findings indicate factors that have previously been overlooked with reference to preparation for a job future. The decision-making processes of the young people were found to include a combination of a consideration of personal desires, social relationships and expectations, a sense of a positive disciplinary bias by employers, and an emotional connection to the geographies selected for their future selves.

What also stands out is the collective precarity for which young people seem to be perpetually preparing. Archer's (2007) modes of reflexivity help identify the different ways in which decisions are made, but it also reflects this wider phenomenon in society. What is interesting is that despite these situations, or even as a result of them, young people seem to attempt to balance multiple, conflicting demands. Unless universities harness this in a positive, mutually-respectful way to support the development of an informed and active citizenry, there can potentially be no rationale for prompting employability other than to suit a politico-economic demand.

## **1.1 Structure of thesis**

In its totality, this thesis is presented through eight chapters. After providing a brief introduction here in Chapter 1, Chapter 2 draws together the background of key themes for this research. It traces the emergence of employability in the UK and its relationship with HE. It lays out the landscape of HE policy and economic changes that have had an impact on HE, and presents the notion of employability in HE. This context sets up some of the critiques I wish to highlight about the landscape of Higher Education in the UK.

This then follows on to Chapter 3 which is divided into the conceptual and theoretical frameworks. First, 'the student' in HE is presented as embodying a multi-dimensionality in an attempt to move beyond a homogenising view of students. This is followed by a clarification of employment from a science degree particularly focusing on the trajectories of physics students. Here, the science identity and science capital are introduced as potential conceptual lenses through which to view decision-making. Finally, the notion of the graduate is clarified. This is done by engaging closely with Leonard Holmes' (2001) concept of graduate identity rather than employability. I argue for a consideration of this as a graduate sense of self. The theoretical framework includes an argument to move away from Human Capital Theory and side-step the over-use of Bourdieu to attempt to understand processes

of decision-making. Here, I argue for the use of Margaret Archer's (2003; 2007; 2012) theses which frame this research and is argued as providing a novel approach to the theme at hand.

In Chapter 4, the methodology for this research is described. I used a qualitative approach through narrative enquiry. I started with a preliminary study, and continued with methods used to contextualise the university and department through a questionnaire and observations. This then followed into a longitudinal, in-depth study with eight participants. Here, I describe the way that the necessary information was collected and processed. I consider the ethical implications of conducting this research. Finally, I present some limitations of the method.

In Chapter 5, the findings about the case context are presented. This includes a presentation of formal employability provision at the institution where this research was undertaken through the observations carried out. It also presents the findings from the questionnaire to get a better sense of how the particular cohort engaged with employability futures. Because of the lack of depth of information from these sources, I then present an argument for an in-depth qualitative enquiry and explain how the analysis for the same was carried out.

In Chapter 6, the findings from the in-depth longitudinal interviews conducted with eight individuals over 14 months as part of this research are presented as 'Case Stories'. Here, each of the participants journeys are traced to understand the status of their Internal Conversations as they made their way from their degree to their futures. The stories reveal discrepancies in how people experience preparation for their transitioning from a degree. However, they also act as a testament to the embeddedness of employability in how young people think of their future selves.

Chapter 7 presents the discussion of the findings, primarily those of the longitudinal element of this research. These are the key contributions of this research and includes a critique of formal routes to employment, a consideration of the particularity of transitioning from a science degree through the mobilisation of what I call the 'science ego', and finally the role of geography and mental wellbeing in decision-making.

Finally, Chapter 8 is a conclusive chapter that draws together all the facets of this research. The Research Questions are re-visited in relation to the knowledge contributions of this research. In particular, the novelty of the empirical longitudinal study is presented as important to taking forward the discussion about youth and STEM graduate futures. The ontological and epistemological framework through the use of Critical Realism is also novel and aided the development of the concept of the science ego, the graduate sense of self, and enabled an initial consideration of the

university as heterotopia. I then critique the use of Margaret Archer's as the theoretical framework, and while suggesting that it be tailored to address shortcomings, also suggest that it is a useful framework for studies in HE. Finally, I consider the implications for policy and universities. The limitations of this research are then presented. The research presentation ends with suggestions for potential future work that can build on some of the findings of this thesis.

## Chapter 2 **Background**

This chapter provides an overview of the context in which employability arose as an agenda, and its relationship with Higher Education (HE) and the objective to build a Knowledge Economy (KE). It highlights the changes in policy that relate to employability as an agenda in HE in the UK and its resulting shifts in the job market. It considers the changes in HE policy that transformed provision, particularly focusing on the fee regime following the adoption of a knowledge economy since the 1980s. Following on from this, the notion of the STEM skills gap will be presented with a focus on understanding graduate trajectories from a Physics degree. Finally, employability development at university will be unpacked, revealing some problems with the definition of the concept. Some models developed to embed employability in HE provision will be presented, followed by a consideration of how employability is delivered.

### **2.1 Employability through economic and political shifts**

Employability in its formal usage relates to the employment capabilities of the workforce of a country. Reviewing literature on employability as a concept as used in Europe, McQuaid and Lindsay (2005) draw together three waves.

1. Manpower assessment
2. Socio-medical view
3. Individual capacity and responsibility

First, at the start of the 20<sup>th</sup> century employability emerged as a dichotomy between those who can be employed and those who could not be employed, in relation to whether someone was fit for working. This was to establish whether or not persons were eligible for welfare benefits. In essence, it is a combination of employment with a consideration of 'ability' which loosely relates to whether someone was able to find employment (i.e. employment + ability). Here, we see that a perceived link has been suggested between employability and employment status.

The second wave in the 1960s and 1970s was largely a demand-driven attempt to match the demand for work and the labour ability, within which physical and mental (dis)abilities were factors of manpower planning (Ahamad and Blaug, 1973). Again, we see that this status is in relation to work and capacities, or perceptions of capacities. Changes in the economy following the World Wars and a push towards science and technological development with the emergence of the two Blocs (Eastern and Western) under the Cold War resulted in countries expanding their manpower capacities. In this wave, political responses to global dynamics influenced the labour market, the demand for science and technology, and the expansion of HE. It also

began to interlace these institutions with an inclusion agenda based on class and poverty, albeit with a focus on uplifting white sections of the population (Gilroy, 1987).

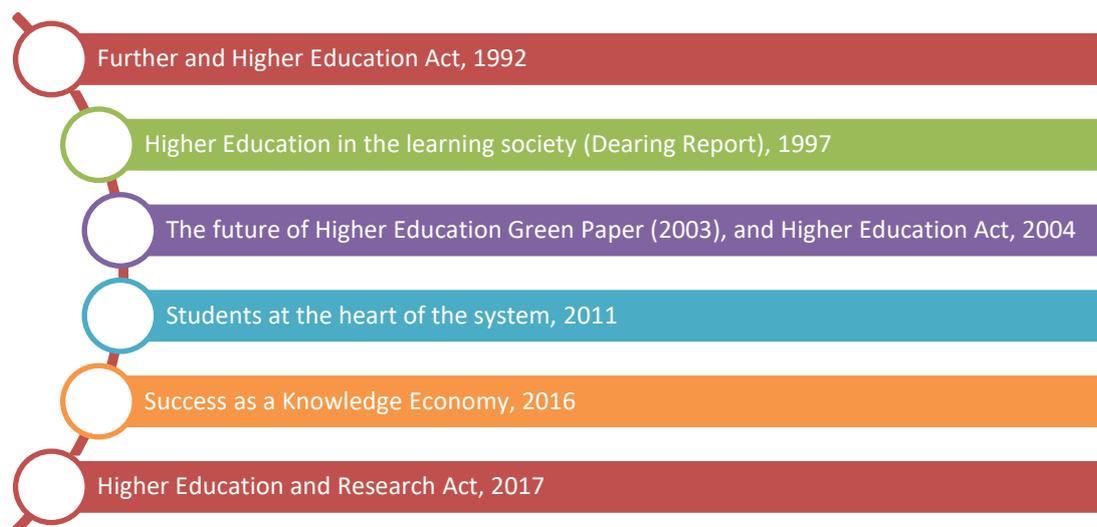
Finally, the third wave focused on labour market performance which stressed initiatives by individual persons in accessing jobs in the late 1980s and continues currently. Within this time period, the landscape of jobs changed drastically. Employability was laden with the expectation that the person was able to respond to rapid changes in the job market. Under the Conservative government led by Margaret Thatcher which heralded this third wave, the Industrial sector was scaled back to make way for a skilled, Knowledge sector through privatisation and neoliberal market competition – for example through coal mine closure in favour of importing resources at cheaper rates resulting in redundancies in the UK. This is called the Knowledge Economy. Powell and Snellman (2004, p.201) describe a Knowledge Economy as *“production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence.”* They explain further that in this form of economy, there is a heavy reliance on intellectual capabilities and highlight the recent rise in share of ‘intangible’ capital in Gross Domestic Product (GDP). This shift had a lasting impact on the population and geographies in the UK for years to come (for example, see D’Silva and Norman, 2015). The science and technology industry dominated the landscape of employment demand which needed more skilled labour. The reaction to this was mixed, seeing as while jobs were lost, new ones cropped up and the Conservative government held the country until 1998. Neoliberalism transformed the very fabric of British society, introducing the population to new and often improved services, often at a higher price too.

As a result of the redundancies and need for re-skilling of labour to fuel a Knowledge Economy, people increasingly accessed Further Education (FE) and HE (Ashton et al., 1990) to be trained to suit the jobs available in the job market. In the case of the miners, loss of livelihood forced many into redundancy, coupled with poorly managed payments (Turnbull and Wass, 1997) forcing many to undertake a new profession, and a majority of the younger population sought other forms of work. Within the neoliberal economy, the education system, particularly HE, is the key site at which knowledge capital is developed to fuel the knowledge economy (Olssen and Peters, 2005). This third wave of employability solidified the relationship between HE and the economy as well as policies and political changes. Increasing access to HE and skilled jobs has become a continuing agenda of subsequent governments in the UK. Between 1975 and 1998 the number of men with no qualifications, fell from 50.2% in 1975 to 18.9% in 1998. The figures for women with no qualifications, showed a similar

trend of 58.3% with no qualifications in 1975 to 23.3% in 1998 (Machin and Vignoles, 2018, pp.9–10). It expanded further under New Labour from 1998.

From a global historical context, changes in the British economy to a 'post-industrial' society coincided with the period of decolonisation, where colonial industrial countries lost control over their colonies from where a large amount of raw material resources and human power was extracted for exploitation to suit the economic needs of the coloniser. As the UK and other European colonial countries no longer controlled such vast amounts of raw and human resources, in order to re-establish their dominance, it became necessary to transform their economies as they faced an increase in competition from newly independent countries. This led them to reinforce their global political power through economic proxies of the notion of development, formulated by building on colonial power dynamics (Chang, 2002). Arguably, the Knowledge Economy is linked to an oppressive history of colonialism by Europe and coups by the USA in Latin America (Mignolo, 2002; Mignolo, 2003; Quijano, 2007). Escobar (2001) highlighted a phenomenon he called the 'gaze of the expert'. Here, non-Latin Northern American and European countries attempted to hold autonomy over knowledge by treating the 'third world' as objects to be studied. Alongside this, these 'first world' countries also held a fear of communism, linked to the proxy reason used for the aforementioned coups in Latin America. This was called the Red Scare. Globalisation and free-market capitalism (Capitalism since 1945) was characterised by science and technology knowledge advancement which itself was an investment into military preparedness for a potential Third World War. It continued until the fall of the USSR in 1989. This economy continues to exist, though under the guise of creating a Knowledge Economy. To suggest that employability in HE is not political and does not relate to the economy is to forget its historical use. Here, I have established that knowledge and access to it is political and economically driven.

**Figure 1 Higher Education Policies affecting degree provision in England**



There have been a number of changes to HE since the drastic change to a Knowledge Economy, as explained previously. **Figure 1** displays the HE policies that have had a defining impact on degree provision. More broadly, changes to policy since 1988 through the entire institution of UK education provision right from schooling have employed the argument for improving choice and thereby increasing diversity under the New Right government which aimed to promote a neoliberal form of economy. From this perspective, HE can respond to the needs of the market, and so the market is free to work at its own will. In so doing, it is proposed that social hierarchy sheds its rigid industrialised class system to give way to social mobility. However, through an analysis of its use in political documents, Payne (2012, p.69) cautions that

*The alleged lack of mobility, to which all major parties also subscribe, is not simply due to lack of achievement of the lower classes, but also due to the capacity of the higher classes to out-compete them. There can be no substantial increase in upward mobility unless current blockages are removed: in other words, steps have to be taken to increase downward mobility by reducing social inequalities from the top. It is not the case that more mobility will reduce social inequality: rather reducing social inequality will increase social mobility.*

It is important then to recognise this potential for power to reproduce itself within the very means through which social mobility is said to be possible, as well as to understand how people nevertheless make decisions within, through or despite constraints or enablements. For example, a study by the Institute for Fiscal Studies by Vignoles et al. (2016) gives important insight into the longitudinal process of students graduating from University and sheds light on the social inequalities that characterise the employment of graduates. Using administrative data from public records such as the Student Loan Book, they found that graduates from lower socioeconomic backgrounds as well as female graduates were disadvantaged in the

workforce in terms of their earnings, despite accounting for difference in course and university. Differences in access to what Ashley et al. (2015) call 'elite professions' too is determined by class, gender and ethnicity.

Returning to HE policy changes, the objective to create a Knowledge Economy requires a population with a high level of knowledge, and thus Further and Higher Education are the most prominent routes through which this is undertaken. Accordingly, through the Further and Higher Education Act 1992, HE expanded to confer polytechnics with degree-awarding powers, making them universities and able to graduate students. It also set up independent bodies like the Higher Education Funding Council of England (HEFCE) to assure quality. The impact of this move was manifold, but the most prominent aspects of this Act were:

1. Increase in competition in HE: With new universities, the more established Russell Group and Oxbridge universities faced an increase in competition for students in an environment that simultaneously raised the demand for graduates and skilled labour.
2. Equated vocational and research training: The polytechnics largely trained for vocational professions, while the pre-92 universities largely focused on research-related professions. This severely blurred the lines between occupations whilst maintaining a covert difference between the two.
3. Increased choice and access: An increase in number of universities increased competition for students, and so universities would need to prove themselves to attract students.

The Dearing Report (1997), *Higher Education in the learning society* was published just before New Labour gained power in the country. The report, amongst other things, attempted to address the financial impact of the increasing demand for HE (Greenaway and Haynes, 2003), and so proposed that universities could introduce fees up to £1000 per annum in order to meet funding shortages. Alongside this, the report called for a need to consider access to university, proposing that Widening Participation would support students from lower socioeconomic groups in accessing HE. Coincidentally, the mid and late 90s saw an increase in the gap in HE participation based on socio-economic situation (SES), classified in Socio-economic Groups (SEG) (Blanden and Machin, 2004). This changed the dynamic of the university as a public service, and although Universities continue to hold 'charity' status, they are permitted to charge fees, which rose again in 2004 following the 2003 report *The Future of Higher Education* (Clawson and Page, 2012) and the subsequent Higher Education Act of 2004. This policy enabled a fee rise to £3000 per annum as a 'top-up' to respond to a deficit in the budget. It also claimed to attempt to support poorer students by abolishing upfront tuition fees, and increasing support for poorer students.

By 2011 the narrative about HE changed drastically under the Coalition government – Conservative and Liberal Democratic. The report *Students at the Heart of the System* (BIS, 2011) ironically forgot about students when increasing fees to £6000 with a cap at £9000 per annum if Higher Education Institutions met the Office for Fair Access (OFFA, subsumed into the Office for Students under the Higher Education and Research Act of 2017) agreement to allocate provisions to widen access in these institutions. Slowly but surely, these changes in policy framed the university as responding to a market-esque system of demand and supply, competition and choice, and constantly changing labour market needs. In 2016, the HE White Paper *Success as a Knowledge Economy* (BIS, 2016) made clear what was expected of HE, and it appears that universities willingly comply. Since the Higher Education Review Act in 2017, the TEF was introduced to provide a measure of quality in teaching, via a series of metrics. This was intended, in some ways, to mirror the Research Excellence Framework (REF) and create parity of esteem between teaching and research in HE Institutions. One of the contributing indicators to the TEF metric was ‘employability’ which is the rate at which students find employment after graduating from their degree. Until 2018, this was measured six months after graduating as the Destination of Leavers from Higher Education (DLHE), after which the ‘Graduate Outcomes’ survey will follow-up on graduates 15 months after graduation (HESA, 2019). However, the TEF too has changed over the years, as policy makers and institutions struggle to establish suitable indicators for ‘quality of teaching’ in HE. Nevertheless, the employability proxy continues to be a significant metric for league tables about quality in HE. In order to maintain brevity, the global scale of tensions caused by league tables (Jöns and Hoyler, 2013) will not be discussed further. However, it must be stressed here that the impact of policy changes on the university system contribute to rendering it very much part of the neoliberal economic system, one in which universities engage in market competition along with its inequalities, individualisation and isolation.

The transformations in HE policy have not been without contestation in recent years. Critiquing the changing relationship between education, jobs and incomes within the global landscape, Lauder (2012) identified four trends:

1. The rise in mass higher education
2. Quality and price revolution
3. Digital Taylorism (which essentially implies the transformation of innovation to routine practice, or routine knowledge. Thereby “making [knowledge] generally available to the company rather than being the ‘property’ of an individual worker” (ibid: p 46).
4. The creation of a war for talent

This model draws on a Marxist tradition and thus warns of a potential alienation of the person from themselves and their labour, but also of society transforming to one of competition rather than cooperation.

## 2.2 The STEM skills gap

There is a continued demand for science in the economy. Over the centuries since the enlightenment, science has gained a prominent role in the progression of western societies through the various stages of capitalism. Today, late capitalism (a term used to indicate the period after 1945) continues to see a sustained exponential growth in technological advancement and expansion of scientific knowledge (Powell and Snellman, 2004). Within the context of the knowledge economy, the spread of and demand for scientific knowledge both locally and globally is high (UKCES, 2015; Banks et al., 2015). In academia this is evidenced by governmental resource allocation to Research Councils wherein natural sciences (Engineering and Physical Sciences Research Council – EPSRC) receive more funds than social sciences (Economic and Social Research Council – ESRC), and arts and humanities (Arts and Humanities Research Council – AHRC) do in combination. The resource costs involved arguably accounts only in part for this expenditure. There have been Higher Education Funding Council of England (HEFCE) subsidies for ‘Strategically Important but Vulnerable Subjects’ (SIVS) (HEFCE, 2010), where science subjects have been supported. This is what makes the fees of degrees equal across disciplinary categories. In another example, the National HE STEM Programme was a three year initiative worth £21million that focused on recruitment of students and improvement of programme delivery for the same in the subjects of chemistry, engineering, mathematics and physics at degree level (Grove, 2013). No such equivalent funding has been granted in other disciplinary spheres. Alongside, social and philosophical knowledge grapples with a transformation in society characterised by fragmentation and anomie often caused by capitalism and consumerism. After all, technology itself is “*the result of the development of capital, rather than some primal cause in its own right*” (Jameson, 1984, p.77). As a site of ‘creation’ of scientists to respond to this demand, the role of universities continues to be integral to understanding how the Knowledge Economy is fuelled.

Running parallel to the changes since the 1960s discussed in the previous section, was also a shift in the role of science in education, particularly in schools. Tracing the history of science education, Donnely and Ryder (2011) highlight that although initially emerging in a context with some scepticism, science education grew rapidly since the 1970s, albeit haphazardly. The 1980s onwards however saw a more

structured approach to this, the debates around which were characterised by the 3 themes of:

- student 'independent' investigatory work (internationally often called 'enquiry')
- science, citizenship and ethics;
- science and the workplace.

They note that the latter is not as visible as the former two. Nevertheless, despite these changes, there have been suggestions through policy that the number of people undertaking STEM do not respond to the labour market demand. This is referred to as the 'STEM skills gap'. For example, the Wakeham (2016) report was particularly pivotal in suggesting the urgency in need of STEM graduates. The Wakeham Review (2016, p.40) highlighted that 35% of stakeholder respondents, which included HEIs, FECs, PSRBs, representative organisations, employers and students, felt that graduates in 11 STEM disciplines did not meet the needs of employers, one of which was physics. Although physics was not specifically identified as needing urgent attention, it did highlight, through the use of Destination of Leavers from Higher Education (DLHE) data, that physics students are unemployed at a higher rate than the average amongst STEM subjects. Wakeham calls for an increase in individual responsibility alongside career support. The premise of the Wakeham review is that students need to undertake STEM degrees and progress into STEM careers to contribute to the economy. The report also mentioned employers not getting a sufficient number of skilled graduates to fill their available positions.

However, alongside these arguments there are concerns raised regarding this agenda when the figures show that STEM uptake has increased in line with other disciplines, though there are variations within STEM discipline uptake (Smith, 2010). Recent research by Smith and White (2019) has suggested that a degree may not even be necessary to meet these demands, seeing as the real shortage lays primarily in the number of Engineers. However, they suggest that it is possible to respond to this shortage with physics graduates, for example, that share a skill-set. Nevertheless, policy-makers continue to push for an increase in people in STEM education, following on from the notion that the economy can be responded to through education. The authenticity of the claim of such a gap in terms of numbers have however been questioned, suggesting that rather than all of STEM, only some disciplines have seen a shortage in uptake and transition to the job market, particularly engineering which can be responded to by physics graduates (Smith and Gorard, 2011). Furthermore, through the increase in popular science the assertion that a STEM skills gap must be filled does raise questions about the efficacy of such communication and spending and whether the claims are valid. The narrative around the STEM skills gap therefore raises questions about the policy rationale for

promoting science education, suggesting that a market-driven demand does not coincide with the purpose of science education which is to support people to understand science, or their science literacy. Science education has itself seen a slow, but steady, acceptance in British society not the least through policy implementation (Donnelly and Ryder, 2011).

Through marketisation, universities now sell their services to students (and parents), providing them an illusion of choice (Pugsley, 2005, p.35). As they enter this transaction, students make decisions, as with other services, perhaps asking themselves:

- what does it enable?
- What add-ons do I receive in comparison to others?
- Do I have the capital(s) to purchase it?
- What is its exchange value and eventual worth?

Ideally, as there is a 'skills gap' in the market (Banks et al., 2015), the economic gain for graduates going into STEM jobs ought to be high. Graduates from physics have been found to be the highest paid according to graduate destination data (Ball et al., 2017; 2018), answering the question of 'exchange value'. Accordingly, there has been a push to increase the number of STEM graduates to respond to market needs. It is expected that an increase in interest and number of STEM graduates will respond to this gap. As introduced earlier, there are conflicting views on whether or not this gap does in fact exist.

This section has attempted to highlight the complementary relationship that the STEM skills agenda has with advancing a neoliberal Knowledge Economy. Now that we understand the basis of today's knowledge economy, the next section will consider the ways in which employability functions within present-day HE.

## **2.3 Graduate Employability**

The move to comply with and incorporate policy changes into university provision has perhaps resulted in the use of 'employability' in common parlance to refer to HE provision. As a result, a majority of this literature relates to employability at universities. The dynamics that play out are presented in this section.

### **2.3.1 Defining employability**

There is a lack of consensus on the definition of employability, but it is largely accepted that an employable graduate is not just one who has a degree and is capable of working. The most commonly-used definition of employability, that was adopted by the Higher Education Academy (now Advance HE), is by Yorke (2006, p.8). According to this definition, employability is:

*“A set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy.”*

Focusing in further on the aspect of ‘attributes’ and reflecting a sense of enablement and active engagement, Harvey (2005, p.13) suggests that

*“employability is not just about getting a job; it is about developing attributes, techniques, or experience for life. It is about learning, and the emphasis is less on “employ” and more on “ability.” In essence, the emphasis is on developing critical reflective abilities, with a view to empowering and enhancing the learner. Employment is a by-product of this enabling process.”*

From these two definitions, it appears that employability is related to performance in employment and access to the job market as well the political and social landscape in the UK. One may therefore suggest that the ‘enabling process’ suggested by Harvey is also influenced by the target population of this strategy, i.e. the students about to graduate.

However, there are some shortcomings in these definitions. The former fails to recognise the agential capacity of students and the process of being rather than a check boxing of ‘achievements’ and attributes. As such, the understanding used in the latter definition fills this void. Although it focuses on the learner as if not existing within a context, it does stress on the fact that this agenda enables possibilities, and recognises it as a process. Yet, neither fit with some critiques and advancements in studies on the employability agenda. For example, when considering graduate employability, although Yorke and Knight above identify ‘community’, it is uncertain as to whom this relates and how they will be impacted. Furthermore, both definitions whilst referring specifically to HE and graduate employability do not incorporate the role of university into the definitions, which is often assumed as the geographical location of employability development. Nevertheless, Harvey’s definition appears to attribute more agency to the learner which is an important shift in thinking about the actors to whom employability relates.

Following up on this move to refocus employability onto the individual, in systematically reviewing employability, Williams et al. (2016) find three dominant dimensions that characterise the term. These are *capital* (human, social, cultural, psychological), *career management* (signal and self), and *contextual components*, all of which together influence the practice and conceptualisation of employability particularly if the aim is to develop such ‘skills’. This lays bare the paradox of development of employability. From the point of the person, there are two sites of employability making its ‘development’ almost paradoxical; that of it being a person’s individual responsibility whilst simultaneously being constructed external to the

person, particularly seen through policy (Brown et al., 2003; Boden and Nedeva, 2010; Sin and Neave, 2016; Chadha and Toner, 2017). Unexpectedly, HE Institutions serve as a mediating ground between these two.

It is important to recognise at this point that although employability is often seen in relation to HE, the term also implies capacities developed during and for employment; the relationship has been observed at the start of this section. For example, education may be understood as a stepping stone to (graduate) employment in terms of the knowledge gained, but there are other pathways to this – such as apprenticeships – to help people develop the required ‘world of work’ skills. Thus in a work context we may see employability as

*“The capability to move self-sufficiently within the labour market to realise potential through sustainable employment. For the individual, employability depends on the knowledge, skills and attitudes they possess, the way they use those assets and present them to employers and the context (e.g. personal circumstances and labour market environment) within which they seek work” (Hillage and Pollard, 1998, p.12)*

All working people are expected to develop their employability skills as they work their way through various stages of employment, making themselves flexible to respond to an everchanging job market.

### **2.3.2 Delivering employability at university**

The complexity of employability and how it may be developed has been understood through models of the concept. These have particularly related to embedding employability in curricula. There are two popular such models. A first is the USEM model by Knight and Yorke (2002) who aimed to address the “top-downism” of implementing employability in university settings. The acronym stands for:

- Understanding
- Skills (subject-specific and generic)
- Efficacy beliefs (and self-theories generally)
- Metacognition (including reflection)

Through presenting a relational model, Knight and Yorke (2002) propose that employability is influenced by these aforementioned aspects. Of the four, efficacy beliefs are considered as having a unidirectional impact on skills, understanding, metacognition and also directly on employability. Meanwhile, the remaining three have bidirectional relationships amongst themselves, and directly impact employability too.

A second model for explaining employability is somewhat more complex, developed by Dacre Pool and Sewell (2007) called “CareerEDGE”. In addition to developing

the person's employability, this model aimed to contribute to developing employability strategies. This model is devised of five relational elements:

- Career development and learning
- Experience relating to work and life
- Emotional Intelligence
- Degree subject knowledge, understanding and skills
- Generic skills

Through this model, the person is brought to reflect on and evaluate these aspects through self-efficacy, self-confidence and self-esteem, and eventually lead to the metaphorical door of employability. Both models highlight the different ways in which skills can be categorised and identified for the person to enhance their capacities. What is interesting is the role of degree subject knowledge and 'reflection' which both models highlight. Such models tend to be used in career advice and therefore will not be discussed further as it sits outside of the remit of this research. An attempt to bring together research and (career) practice can be found in the edited volume by Burke and Christie (2018).

Universities have made various attempts to help students develop employability skills, responding to policy demands as well as those of students accessing graduate prospects. Reporting on best practice across the UK, the HEA report by Pegg et al (2012) conclusively recommend that although there has been a great amount of work across institutions in the UK, the areas to focus on embedding the employability agenda include Learning, Teaching and Assessment (LTA), work experience, and building an institutional culture that promotes employability.

Employability has arguably heralded a pedagogical turn, and as Lambert et al. (2007) suggest, has the potential to change the way in which education is *done*, proposing the use of critical pedagogy to reinvent HE practice which in turn can equip students with better employment skills. There is a range of ways in which employability has been embedded into curricula to bring about a practical engagement with subjects and the world of work. These include work-based learning, awards and programmes, and including employers in construction of courses (Lowden et al., 2011). However, this may over-emphasise the role of employers in the process of HE. Tomlinson (2016) found that students themselves primarily view education to help them learn or attain knowledge, but recognise the change in employment landscape requiring them to supplement their learning with employability skills. Yet, there is a subtle way in which this suggests that education no longer is for the sake of knowledge, but rather is a stepping stone into the world of work. It is then possible to ask, "should universities promote employability?" to which McCowan (2015, p.273) responds that there needs to be critical engagement with the agenda, not accepting it blindly, but

that "*there may be an argument instead for targeted provision in this area specifically to equalise the chances of disadvantaged groups*". The suggestion is therefore that employability development can support social mobility. However, once again, Payne's (2012) word of caution regarding social mobility and the role of power dynamics amongst classes that reproduces hierarchies should be borne in mind (see p. 11 of this thesis).

There has been a shift in HE provision to a massified form. Coupled with functioning under the knowledge economy, a new framework for functioning is through a collaboration between industry, universities and employers, called the Triple Helix Model (Etzkowitz and Leydesdorff, 1995). In the case of graduate prospects in which employability is enacted, it instigates new relationships to be formulated between the individual student, the university system, policy-makers, and industry and employers (Sin and Neave, 2016). These transformations, according to Boden and Nedeva (2010), followed on from political changes through neoliberalisation under the Conservative government in the 1980s, and put unprecedented power into the hands of the government and employers, which drastically changed the HE landscape.

#### *Concluding Note*

This chapter offered an outline of the historical emergence of employability in relation to the political economy. These changes in HE have taken place alongside local changes in the political and economic landscape of the UK, as well as global and globalised changes in politics and economies, and largely relate to advancements in science and technology, and power structures that subsequently impact the everyday lives of people. The conflicts raised in this chapter point to a need to understand how the individual person interprets and engages with this process of employability development. In the next chapter, I will address this while developing the conceptual framing of this research alongside consideration of theoretical underpinnings.

## Chapter 3 **Conceptual and Theoretical Framework**

The changes discussed in **Chapter 2** relating to policy and the economy that have had an impact on Higher Education (HE) have also transformed the way students and graduates are understood in Britain. To explore this, this chapter is divided into two sections. First, the conceptual framework presents the process of transitioning from a degree to work. These concepts are: the student, STEM students and graduate prospects, and graduate sense of self. Employability will be considered an underlying theme owing to its prominence in the narrative on university provision, as explained in **Chapter 2**. The second section is the theoretical framework of decision-making as social action. This includes, firstly, a brief review of Human Capital Theory which is most commonly used (or assumed) in research about changes in HE since the 1960s. It is followed by the use of Pierre Bourdieu to understand differential experience in HE through social reproduction of class privilege, which gained popularity in the late 1990s and is used in much present research. Finally, Critical Realism and the Internal Conversation as developed by Margaret Archer is presented as a new theory to understand decision making in the context of HE.

The implications of changes to HE will be considered from a critical perspective about its purpose and relationship with the labour market, and regarding how individuals make decisions about their futures. Through this chapter, the argument presented is one in favour of repositioning the narrative of employability as emerging from the person, rather than the existing tendency to prioritise economy and market-driven agenda in policy and HE.

### 3.1 **Conceptual framework**

In this section, I clarify the use of key terms that are used in this research, particularly by addressing their current, value-laden usage. Through **Chapter 2**, concerns were raised regarding the understanding of the student and young people's inclusion in policy-making that eventually affects the futures of everyone, but is more defining for young people for a longer-term. I therefore discuss the ways in which the undergraduate student is understood and spoken about in literature to argue for an understanding of a multi-dimensional person. This is followed by a focus on the process of transitioning from a science degree, particularly physics as it is the discipline being focused on in this thesis. Finally, I consider the notion of the graduate and how the graduate is understood. Here, I attempt to argue that the graduate is created both by the structures around them, as well as by the individual actor. This latter aspect is often missing in discussions about graduates.

### 3.1.1 The multi-dimensionality of undergraduate students

An increasing number of people are undertaking degrees in the UK, and so acquire the status of student. However, the changes in the landscape of HE has made it such that this status is laden with complexity. This complexity will be disentangled by confronting the imagery of the student as:

1. (Assumed) Ideal Consumer
2. Victim of Consumerism
3. Non-worker (or idle consumer)

I aim to present how the student can be viewed in multiple ways and that all may be true while simultaneously false. I argue that the student must be understood as an actor influenced both by individual agency and the impact of structure.

To begin, owing to the increase in fees and the costs associated with foregoing a salary through work by opting to study, there is an assumption that accessing HE is transactionary, like making a purchase. As a result, some research views students as consumers of the product of HE. These studies may buy into the notion of HE as a product to be consumed (such as Singleton-Jackson et al., 2010; Woodall et al., 2014); others critique the consumerism associated with such an approach, favouring instead student learning (Naidoo and Jamieson, 2005; Molesworth et al., 2009); whilst others still seemingly place the onus on students for this change to a marketised, consumerist HE system (Nixon et al., 2018). Interestingly, in most of this literature, the student is treated as passive and compliant or disinterested in the situations that have transformed HE. This symbolically forces the student to be responsible for their futures, reiterating the relationship between HE and work, and putting additional power into the hands of employers (Boden and Nedeva, 2010). Furthermore, views that presume that HE 'transforms the student' and that engagement with employability is merely consumerism fail to acknowledge a more wholistic understanding of learning. Instead, it inadvertently (or otherwise) endorses a didactic process of knowledge dissemination, or what Paulo Freire (1970) called the 'banking model', where knowledge is deposited to make the student know more. It does not include the individual's ability to co-create knowledge or influence learning and teaching practice. Such a perception runs the risk of maintaining the status quo rather than bringing about pedagogical change.

Perhaps responding to this gap created by the framing of the student as consumer, a second perspective on students and their transitions re-focuses the discussion on the vulnerabilities of students entering university, particularly those from diverse backgrounds. This is particularly within the context of the massification and marketisation of HE, which as seen in **Chapter 2**, has resulted in a new financial burden of tuition fees in order to access jobs in an economy focused on generating

intellectual capital. Studies have shown that inequalities related to class, race and gender reveal a differential experience of higher education by these students, who often deal with hurdles in this transitional process to HE and after it. This begins right from the so-called 'choosing' of a university, despite 'widening' initiatives (Reay et al., 2001), as this itself is a result of carefully calculated recruitment strategies by universities which eventually result in students from diverse backgrounds feeling excluded at university (Crozier et al., 2008; Reay et al., 2010). Using the case of the creative industries, Allen and Hollingworth (2013) reveal that when thinking of work and accessing opportunities like work placement in order to 'develop employability', the wealth and other social networks needed for the same may exclude some.

This is eventually reflected in differential graduate earnings across class, despite the progress made by those students from lower socioeconomic backgrounds (Crawford and Erve, 2015). A further explanation of this is by Abrahams (2017) who found that middle class students often used nepotism to get appropriate graduate-level jobs. Meanwhile, working class students would not ask for help from family with finding a job as they felt that their merit should get them the job they are due, i.e. they believed that everyone followed meritocratic principles. This situation condemns students from less-advantaged sections of society, particularly those multiply-disadvantaged, to a perpetual reproduction of (dis)privilege in society. This is a result of a broader phenomenon of social inequality in British society, wherein inequality is perpetuated and plays out throughout the life cycle, and can be observed particularly through all levels of education (Bhopal, 2018). This continues into the work place where Ashley et al. (2015) find that post-graduation, "non-educational barriers" particularly the intersecting of race, class and gender have an impact on graduate access to elite professions. This strand of research exposes inequalities in HE perpetuated by an unequal society and a failure of policy-makers and universities to acknowledge and implement appropriate measures for change. Here, the student is seen as a victim of the consumerist system, and adds a new dimension to the label and imagery of 'the student'. Some concerns with this image in particular will be addressed in **section 3.2.2.**

Of course, there are some ironies with the consumerist framework on the part of those who assume it as well as those critiquing it. This is a third image of 'the student' as a non-worker. The notion that British students forego a 'real' salary to be at university forgets that the individual receives state funds – much like others who cannot find work, though students are considerably less stigmatised perhaps owing to the notion of students eventually paying back these funds. In addition, young people are often engaged in work while they study. Moreau and Leathwood (2006a) find that working class students who are 'non-traditional entrants' to HE do this out of

financial need. Other small-scale studies in different institutions also show that students work to contribute to living costs, often negatively impacting their degree attainment outcomes (Holmes, 2008; Callender, 2008) although some reported there being positive impacts such as developing skills often as a side-effect (Curtis and Shani, 2002; Barron and Anastasiadou, 2009; Robotham, 2012). Interestingly, as a key part of employability development it is encouraged not just to study while studying, but also work (Davies, 2000; Holmes, 2001), be sociable and engage in extra-curricular activities (Tomlinson, 2008), all to potentially out-perform any expectations potential employers may imagine of them. The young person therefore needs to prepare (mentally) to be prepared (in terms of study and other activities) to prepare (applications, interviews) for graduate work.

These contrasting views hint at a haphazard consideration of the student within the changing landscape of HE, all with a different objective at hand. The student then is moulded to suit this objective. These shortcomings presented above, are reflected in a poor consideration of the future of young people, as it focuses instead on concerns regarding changes in HE as a social institution, which although is important, cannot be conflated with youth futures. In summary, the label of the student is not static and not unidimensional, as the imagery of this label seems to assume. For this research, the student will be considered in terms of the impact of messages received from within the individual and outside of them. It will be important to focus on how people present themselves as students, what may constitute this and how it may come into conflict with the notions of others.

### **3.1.2 Science degree employment trajectories**

With these complexities somewhat disentangled, the notion of the physics students' employability futures will be considered, keeping in mind that the student as a person is capable of constructing their futures within the constraints and enablements of the social world. This section will now focus on the role of the discipline of physics in how the individual potentially positions themselves and their future trajectories in society. In **Chapter 2**, the notion of the STEM skills gap was explained and some concerns were raised about whether or not such a gap exists in an overarching manner. In terms of employment, based on the literature, it appears that physics graduates should not have a difficulty getting jobs following a degree. Physics graduates have also been recorded as the highest paid. In the most recent report by HECSU (Ball et al., 2018), physics graduates were the best paid overall, with the maximum pay being £30,500. It is suggested that this relates to the type of employment that physics graduates take up which include IT (21.1%) and business, HR and finance (21.1%). The next industries with the highest proportion of physics graduates employed was retail, catering, waiting and bar staff (9.3%), Engineering and building professionals

(8%), and Education (7.7%). It is worth bearing in mind that 47.2% of graduates went on to work full time or part time in the UK (45.8%) or overseas (1.4%), and 40.7% went into further education; 7.6% were unemployed.

There is a discrepancy between the trajectories expected of young people from a physics degree and those actually taken. If financial exchange value was of sole importance to undertaking a physics degree, a direct trajectory from a physics degree to education or an engineering role – where the skills gap exists, and the transferability of skills from physics is high – would be dominant. However, as we have seen, the tendency of going into IT is equal to that of going into business and finance, suggesting that not everyone who does a physics degree wants to do a science-related job (Smith and White, 2017). That is, there is a loss of potential science-industry practitioners. This tendency is not new and in order to understand the causes of what is often called the ‘leaky pipeline’, two related but separate concepts emerged – science identity and science capital, the latter being more recently coined.

The work on science identity is important in supporting people to feel capable of undertaking science, particularly amongst children and young people. It fosters a sense of belonging to the broader disciplinary remit. It has been argued that this concept can help understand what characterises those who go on to undertake a science education trajectory (Aschbacher et al., 2010). As Stets et al. (2017, p.2) explain,

*While involvement in science enrichment programs helps, what also may be important is whether individuals see themselves as a “science” student such that they enact behaviors [sic] consistent with this characterization. Here we refer to people as having a “science identity”.*

Science identity acts as a form of encouragement for the individual to pursue science. It implies someone possessing certain capacities and skills, and seeing themselves as a scientist. As highlighted previously, interventions have been particularly important in enabling such a process of identity formation, which itself may be developed over time and with experience, or have other different ways of being realised. The process of adopting such an identity may be difficult. For example, when speaking about the intersection of race and gender in science identity formation, Carlone and Johnson (2007) characterise the ‘disrupted scientist’ wherein the individual is not recognised by meaningful scientific others, or those whom the individual associates with being a scientist, because of their gender or race. However, whatever the route taken, this identity is said to contribute to the successful future of a scientist. Although the individual goes on to be a successful scientist, they have encountered a challenge to their claim to being a scientist. To an extent science

identity crosses the life course, but appears to be more focused on the future of the individual who does choose to undertake a science-related pathway.

Taking a step back, there are instances in which the individual does not make it past a relatively basic level of science learning. This has been attributed to various factors that might prevent progression into science from a young age. For example, stereotype threat of science being for nerdy, middle class, white, cis-men in lab coats hinders young people who do not share these characteristics from going on to undertake a science-related career path (Shapiro and Williams, 2012); interventions such as Research Initiative for Scientific Enhancement (RISE) have been instrumental in helping children overcome this (Woodcock et al., 2015). As noted previously, such initiatives receive a considerable amount of financial support. One such example is the ASPIRES project which aims to understand and address barriers to progression in science education. Using a Bourdesian lens of analysis of social behaviour and situations, Louise Archer and her team developed the notion of 'Science Capital' to enquire into why people, despite encouragement, do not take up science at higher levels. This concept relies on a class-related understanding of society and 'aspirations'. Therefore...

*“science capital” is not a separate “type” of capital but rather a conceptual device for collating various types of economic, social and cultural capital that specifically relate to science—notably those which have the potential to generate use or exchange value for individuals or groups to support and enhance their attainment, engagement and/or participation in science (Archer et al., 2015).*

Following on from Bourdieu's notion of capitals wherein the individual is advantaged in society not just through economic capital advantage, but also social and cultural 'capital' advantages, this research considers the role of possessing a background in which science is commonly encouraged or practiced. It concludes that those with science capital are more likely to continue with science in their futures. This line of argument works against the backdrop of science being seen as a potential future avenue and the transformations in society that require individuals to possess scientific knowledge to fully participate in everyday social life. The work on science identity and science capital are important in encouraging uptake of STEM in education settings as they have aimed to instil confidence in children and young people to undertake what is often considered a daunting pathway wrought with difficulty, particularly if the problems are understood to be structural (Ulriksen et al., 2010; DeWitt et al., 2013). Together, these framings reveal an internalised and an external form of influencing how an individual comes to pursue science at an advanced level.

Drawing together this section, the student, existing within structural constraints albeit with agency appears to select a degree related to the personal story they have with it as well as their experience of it alongside a notion of a potential future. As explored in the previous section, the student appears to be understood in rather contrasting ways. It is important for this research to acknowledge all these ideas when considering physics students and how they view the factors that influence their future trajectories. The physics student is in a somewhat odd position wherein disciplinary training renders them desirable for the economy, but they do not always fulfil – or arguably even intend to fulfil – this expectation. This research will aim to consider the person as a student and student as a person.

### **3.1.3 Perception of self and being perceived as a graduate**

To understand employability, it is important to also know about the process that transforms a student to a graduate, to locate what it is that the people consider as futures for themselves. Although understood in the plural as a collective term ‘graduates’, the lived experiences of persons with degrees are differently constituted. Social action is as personal as it is socially influenced. The third concept that I use and aim to clarify for the purposes of this thesis is the ‘graduate’, the person transitioning from a degree.

A graduate is someone who has completed a degree programme successfully, often as part of the university system. This is a process through which one acquires a new qualification which one did not previously have. As HE continues to expand with a focus on creating a workforce to feed a knowledge economy (BIS, 2016), it changes the ways in which people progress to work, though there have been questions raised about evidence to suggest an impact of the expansion of HE on economic performance (Mayhew et al., 2004). The environment created is one in which people are expected to have additional qualifications and certifications to progress into a job, therefore it would seem most appropriate to focus on the ways in which students prepare for their future trajectories. Holmes (2001) attempted to steer the debate towards recognising what constitutes a graduate, noting that external expectations about how graduates perform and present themselves demand that

*“their work activity would be consistently interpreted as appropriate performances of the relevant practices, and they would be viewed as worthy of being regarded as a graduate (Holmes, 2001)*

Given the literature presented thus far on the changing notion of a student and the specific nature of a STEM graduate, the suggestion by Yorke (2006) that achievements, comprising of skills, understandings and personal attributes define graduate employability remains but a part of what encompasses the experiences of becoming contemporary graduates, and can be an over-statement in some

instances. Such a perspective that relies on skills and appropriate behaviours to understand what constitutes a graduate as they transition into work runs the risk of centring employers in discussion of graduate transitions, often done through policy and media (Arora, 2015) and forgetting to incorporate students themselves (Tymon, 2013). In fact, Tymon's research with business students reflect participation in various opportunities to improve employability, but employability itself was a means to achieving an individualised job-gaining end and not specifically an improved job quality, with no mention of a wider societal impact. Accordingly, Holmes (2001) offers an alternative to the skills agenda for employability, providing a framework for understanding 'graduate identity'. The commonly propounded skills agenda '*assumes that the process of gaining a job is simply a matter of matching skills required and skills possessed*' (*ibid*, p.112), which is a rather reductive approach as it sees the interaction between structure (through employment) and the social actor (through skills) as objectively, 'rationally' interacting.

The graduate identity approach offers an important move away from the understanding of employability in relation to the skills-based agenda, making it possible to unpick how graduates engage with employability. In essence, this proposes a change to the theoretical conceptualisation of the employability agenda to understand not just its usefulness, but also to subsequently implement the change including multiple stakeholders in its conceptualisation. Employability works as a mode through which the student is able to engage and experience the work setting to best recognise how to interact with it, contributing to the development of the graduate identity.

In an attempt to employ this framework, Hinchliffe and Jolly (2011) develop a list of characteristics of graduate identity-related employability using the graduate identity framework to establish what skills are expected of graduates by employers. In this study, graduates are considered in numeric terms, reflected on by employers, even though the graduate identity approach calls to consider them in terms of their (personal) complexity. It was this study that brought Holmes to re-consider the shortcomings of the initial proposal of graduate identity in its somewhat simplified form. Holmes, (2013b) responded that this is a simplification of the idea, adopted through a realist rather than relativist approach. The former is objective or positivistic, whilst the latter follows the interpretivist tradition of social interactionism. Holmes proposed that rather than graduate identity, *graduateness* – a quantitative category – was being used. In addition, concerns were raised regarding the methods adopted in devising lists of skills, particularly through surveys and other ambiguous sources (Holmes, 2013b, p.1048).

Later, Holmes (2015, p.224) developed the notion of the emergent (graduate) identity as the individual transitions from their degree to (presumed) work, suggesting...

*we may in general regard emergent identity as arising synchronically from the interaction between individual claim or disclaim on an identity, and the affirmation or disaffirmation of that claim by significant others. Emergent identity thus arises from, or "in", the interaction between the individual and significant others, whereby some decision is reached on the question of the kind of person the individual is to be taken to be within, and in relation to, the particular situation.*

Despite the assumption of transitioning from a degree into work, this perspective refocuses the discussion about employability as 'emerging', as it were, from the individual person. It also incorporates the individual's interaction with others. It differs from a large amount of existing work on employability which does not take into consideration the experiences of students or graduates, as presented in **section 3.1.1**. In this perspective of emergent identity, it is proposed that the individual passes through quadrants formed by axes of emergent identity as affirmed and disaffirmed by other, and claimed and disclaimed by the individual. He proposes 5 zones through which the individual may pass as 'modalities of emergent identity', including zone 1: intermediate identity, Zone 2: Failed identity, zone 3: imposed identity, Zone 4: agreed identity, and Zone x: under-determined identity. This basis of formation is very similar to Margaret Archer's (2003) proposal of internal conversations performed through modalities of reflexivity, though Archer provides a (meta)theoretical framing of transitional behaviour; this will be delved into deeper in **section 3.2.3**.

This perspective of graduate identity as emergent is integral to the shift in perception of employability and how the graduate is understood. However, there are some notes of caution regarding fully adopting this approach, important to be borne in mind and which have an impact on how I adopt this framing to conceptualise the graduate. These shortcomings perhaps fall outside of the remit of Holmes' intention to conceptualise an approach to graduate employability, but need to be addressed for this research. Firstly, for theoretical and disciplinary reasons, 'identity' is problematic as an analytical approach.

*Whatever its suggestiveness, whatever its indispensability in certain practical contexts, "identity" is too ambiguous, too torn between "hard" and "soft" meanings, essentialist connotations and constructivist qualifiers, to serve well the demands of social analysis. (Brubaker and Cooper, 2000, p.2)*

Therefore, although I acknowledge the importance of Holmes' construction of the "emergent identity" of the graduate and endorse the use of Goffman's (1968) theoretical framing of the presentation of self in total institutions, I will not deploy the term identity as it is subject to the abovementioned critique. Instead, Brubaker and Cooper (2000, p.17) suggest three alternative terms to reflect the multi-purpose use

of identity to relate to quantification, individual disposition, and group-feel. I will adopt a form of the terms for individuals, '*self-understanding and social location*', withstanding the tensions to be raised in **section 3.2** with adopting Pierre Bourdieu's notions of situated subjectivity in relation to decision-making. For this research, the individual's perception of employability in relation to their graduate identity will be prioritised, or rather *graduate sense of self*.

Taking forward concerns about identity formation, employability continues to be understood through a skills agenda, assuming that one of the primary purposes of becoming a graduate is to respond to employer demands. The graduate status appears to be fairly external, making it questionable if it can be an identity at all. For example, the skills agenda fails to recognise some biases of employers during graduate recruitment which results in social exclusion from certain careers (Ashley et al., 2015, pp.22–23). Holmes' (2001) propositions around understanding graduate identity in terms of engaging with work raises questions about access to such opportunities. In a research study with students, teachers and employers Allen et al. (2013) highlight unequal access to work placements on the basis of class, gender and race. Another problem with the 'graduate identity' approach is that it inadvertently reduces outcome of a degree directly to employment. Tomlinson and Holmes (2017) highlight this as a sustained problem in HE today. Given this role of the economy in how education proceeds – particularly Higher Education – it is erroneous to suggest that employability development is based solely on student demands but also includes external influences. With this said, amongst students, perceptions of the landscape of education does follow from trends of student behaviour, and contributes to thoughts on what they might do regarding their graduate futures (Tholen, 2015).

In this section we have seen how a sort of labelling is used for students at university and graduates, particularly young people. Young people are expected to manage their identity in anticipation of how they will be received by those around them. In the following section it will be argued that the transitions by young people can be made sense of through their decision-making processes. I hone in on theories and empirical work relating to decision-making.

### **3.2 Theoretical Framework: Decision-making**

In this section, I present a theoretical framing of the process of decision-making by undergraduate students about their career futures. Through the conceptual framework, a key problem emerged regarding the tensions between structure and actor in how agency may be approached, that is, whether the economy or the individual retains primacy in how employment and career futures are constituted. This section is divided into three parts, each introducing a theoretical perspective that fits

the theme of the present study, based on prominence of its use in research on Higher Education and employment and career futures. I will start with a critique of Human Capital Theory in order to present one of the dominant theories that enabled the thinking of HE in terms of its contribution to a Knowledge Economy. This is largely an economic theory, and arguably functionalist in its framing. That is, it assumes that people behave in accordance with what structures and institutions expect of them. Following on from this, I will briefly present the use of the ideas of Pierre Bourdieu, reflecting contemporary trends in critically approaching changes in HE in the late 1990s and early 2000s in the UK. Bourdieu's work falls largely in the disciplinary realm of Sociology, focusing on social reproduction of privileges. Although Bourdieu's contribution to a better understanding of the inter-related role of agency and structure in society is pivotal to the discipline, I highlight concerns with the way his theories and concepts have become utilised and mainstreamed in HE research.

Therefore, and finally, the section ends by drawing upon Margaret Archer's work on decision-making through reflexivity. Archer is a sociologist, aligned with the meta-philosophy of Critical Realism. It is a novel approach in Higher Education and relates to the conceptual framing of this research which aims to understand decision-making in a more balanced manner in terms of positioning agency, structure and their interaction under Late Modernity. These theories will be presented through their use in empirical research studies, save for the final section which directly relies on the works of Archer as this perspective is new in its use. The literature includes studies on 'choice and decision-making' amongst young people. I will not use the term 'choice' as it is a vague concept, and unlike decision-making, choice implies a level-playing field. However, some of the studies below have used the term.

### **3.2.1 Critiques of Human Capital Theory**

The theoretical framing closely linked to the knowledge economy is 'Human Capital Theory' (henceforth HCT), which was developed by the economist Gary Becker under the encouragement of T.M. Schultz in the early 1960s. Becker (1960) attempted to understand differences in labour market pay by ethnicity. Locating the problem using an investment rationale, he suggested that people of colour invested less in their education and therefore received lower salaries. Their lack of educational qualifications implied that they were not able to command higher salaries than their white counterparts. He concluded that investment in humans to develop capacities would help eliminate these disparities and in this vein proposed the aforementioned theory. The basic premise of HCT is that education is an investment in future prospects and success, an investment in self or in personal capacity. Decision-making is therefore in relation to a future (economic) stability, though arguably there is no real decision but the logic of the market to which the individual responds.

As an economic theory, HCT appears to provide a route to improved economic growth of countries or societies. This theory has come to be aligned closely with the argument for creating a Knowledge Economy. Supporters have endorsed this both as something that can be proved historically and something desirable going forward. An example of the former, Woessman and Becker (2009) re-visit the classical study 'The Protestant Ethic and the Spirit of Capitalism' by sociologist Max Weber. Weber (1958) argued that Calvinist Protestants adopted a secular work ethic of capital accumulation for (re)investment, thus supporting the growth of capitalism. Woessman and Becker argue that in the period of study used by Weber, rather than religious belief (Weber was particularly interested in the sociology of religion), a higher level of education, an (re)investment in education, is what resulted in the economic success of Protestants. An endorsement of HCT as desirable in the future can be found in work on employability. Knight and Yorke (Knight and Yorke, 2002; Knight and Yorke, 2003) have been widely acknowledged for conceptualising and reconceptualising employability as an outcome of HE, for which they appear to draw on HCT. However, they too warn that employers are not always clear about what they want from graduates, and why they want what they do.

HCT has received criticism alongside its endorsement. For example, Blaug (1976) explained that although the theory is tempting to endorse, it has fundamental shortcomings. When tested using the Popperian 'degree of corroboration', or the ability of the theory to withstand testing, which includes comparison to rival theories, HCT fails. The bases of rejection included its proposal of shared costs between employers and individuals, a private costing of education, and an assumption of equal earnings as if there are no differences caused by family background. In particular, Blaug suggests that the way in which the theory was validated at that point was through the use of the theory itself, rather than in comparison to rival theories, creating a self-fulfilling prophesy. Although this is a system we can recognise in practice today, the period in which it emerged functioned under a Keynesian economic system which had not seen education in economic terms, but rather a social service, though acknowledging the social differences in access.

Critiquing HCT on a Marxist basis, Bowles and Gintis (1975) argued that the control assumed by firms (or in contemporary terms, corporations and other employers) over people and their labour fails to acknowledge their capitalist underpinnings of profit-making. HCT places the onus of personal development solely on the person and expects the person's capacities to be always relevant to employer needs, which indirectly contradicts the HCT notion that individuals have choice. They explain,

*Because the capitalist class pursues its long-run interests through the state, and in important measure through its influence on educational policy, the structure of rates of return to education will reflect the often*

*contradictory requirements of capitalist production and the reproduction of the class structure* (Bowles and Gintis, 1975, p.80)

Here Bowles and Gintis established the relationship between the ruling class (capitalist class) and the state mechanism. They suggested that education policy is made by the ruling class, even if indirectly, to sustain their privileges. Framing education in economic terms of 'rates of return' would only serve to benefit the ruling class as attaching a cost to it would be balanced out because of the future gains from it. This line of argument moves education from its status as a public good to the private(ised) realm. This line of thought regarding class-based differences in experiences of education has in recent years been growing in importance in research on education in the UK. It has led to a more in-depth consideration of class in social behaviour. It is thus safe to say that there has been a shift in understanding the recent changing dynamics of HE, with many viewing HCT through a critical lens.

In the British policy realm, HCT has come to be traded in for the concept Human Capital Development which is closely linked to employability. Here, the individual is trained to be made ready for any change in the world of work, seen as an attempt to prevent redundancies. However, in practical terms this has proven to be difficult owing to lack of support in the process of developing such capacities (Lindsay et al., 2007). In research on employability in HE 'human capital' is used as a concept, and although relies heavily on the theory for its use and meaning, remains detached from its criticisms. The point of criticism relates to the tendency of HCT to transfer responsibility to people in terms of 'investing' in their future at little or no cost to employers. It focuses on the shift in seeing HE in terms of a consumerist model ('investment' in futures) rather than a pedagogically-driven view (knowledge enhancement) (Naidoo and Jamieson, 2005; Naidoo and Williams, 2015).

According to Teixeira (2014), those criticising Becker and HCT in general are perhaps unable to recognise its socially-inspired objective to understand disparities in earning.

*Becker emphasised the relevance of foregone earnings in terms of costs rather than direct costs, thus the impact of good economic conditions and the lack of information and motivation, as the main reasons limiting poorer students' investment in human capital. (ibid., p.10-11)*

However, the perspective does little to challenge the economic system and, in so doing, the source of such inequalities, seemingly suggesting that this onus must fall on the individual. One of the problems with attempting a critique of the use of HCT is that it has become embedded in the framing of policy and subsequent rolling out in practice in HE provision. Therefore, in literature on employability, the term itself is not explicitly used save for when it is critiqued. This is arguably the issue identified previously by Blaug (1976) that HCT is used to justify its own validity and has eventually become everyday assumption as far as policy is concerned. Addressing

HCT on its own terrain, Čadil et al. (2014) present the situation of Southern European economies wherein high education level does not necessarily translate to high social and economic performance. Here, unemployment rates are high owing to the economic context at the time, challenging the proposition that more education directly contributes to the economy. HCT appears to reduce decision-making to an economic duty and a mechanical task.

A straightforward criticism of HCT in the context of this research is that it does not aim to understand human social behaviour since it is rather a theory of expectations regarding economic behaviour most aligned with capitalism. It fails to acknowledge that people are their own entities insofar as they are social beings with capacities not malleable to suit the demands of employers and the economy.

### **3.2.2 Social and Cultural Reproduction: Pierre Bourdieu**

The drastic changes in HE and the economy in the UK over the past few decades have led research in HE to look for other theoretical frameworks that might explain the landscape, acknowledging the aforementioned shortcomings of HCT. In particular, there has been a rising popularity of the use of ideas developed by the French sociologist and social thinker, Pierre Bourdieu whose work has proven to be fundamental in recent work on the sociology of education, using critical theory and social justice perspectives. Bourdieu located dominance in culture as perpetuated by the ruling class to reproduce their privileges. In particular, conceptual tools of habitus, field and capitals from his *Outline of a Theory of Practice* (Bourdieu and Nice, 1977) and *Forms of Capital* (Bourdieu, 1986b) have been used most commonly to understand inequality in education (Edgerton and Roberts, 2014). Although, it may be argued that Bourdieu aimed to better understand culture rather than inequality and so is not necessarily limited to a better understanding of the latter. In particular, Bourdieu's conceptualisation of Capitals has been appropriated with a particular focus on Cultural Capital.

Drawing on this framework, a number of research projects emerged with the aim to better understand the inequalities at play in HE. Through the ASPIRES project, Louise Archer developed the notion of 'science capital', as presented in **section 3.1.1**, which found differences in ability to make decisions about a future in science as a result of class, race and gender. Another example is through the Paired Peers project. Bathmaker et al. (2013) observed how class influenced the ways in which students from middle class and working class backgrounds prepared for their futures while at university. They find that decisions and actions are made through mobilisation of capitals which differed based on access and/or barriers to knowledge and resources relating to class position. Alongside capitals, the concept of habitus has been used to understand experiences of exclusion at university (Reay et al.,

2001; Crozier et al., 2008), and differences in making decisions about transitions from a degree and careers (Hodkinson and Sparkes, 1997; Archer et al., 2015; Brown et al., 2016; Ingram and Allen, 2018). In Bourdieu and Passeron (1990), education was the explicit focus, being the site of the reproduction of class privilege, though this work has been used less popularly.

A very simplistic explanation of Bourdieu's notion of the various forms of capitals was that he aimed to expose how the French elite performed in ways that maintained their position in society and asserting their position as the 'dominant class'. They enacted 'distinction' through consuming what Bourdieu (1986a) called 'high-brow' culture. He argued that rather than the traditional notion of capital as relating to its economic form, privilege was reproduced through three forms of capital, namely, economic, social and cultural. Some readings of Bourdieu even propose a fourth, 'psychological' category which in education has been considered 'Emotional capital' (Reay, 2000). However, this possibly relies on the determinism of psychological traditions, which possibly only amplifies criticisms of the use of this. Bourdieu's theory advances a critique of how society functions to reproduce the privileges of class in society through material and immaterial ways.

Contrary to the Critical Theorists in the Frankfurt School, Bourdieu did not believe that mass culture pacified populations into submission, but rather the blame lies with the ruling class. Given this background, although his theoretical work can serve a social justice agenda, it inadvertently leads to a conditioning view of society in which once a person is born into a certain social situation, they are destined to perpetually remain there, and their decisions will forever emulate their subjugation. With the increasing popularity of Bourdieu's theories have come some de-contextualising of the concepts. What appears to happen within current education literature is the mainstreaming of the term 'cultural capital', outside of its original conceptualisation. Diane Reay (2004) too appears to question this over-use of Bourdieusian concepts, particularly 'habitus', bringing us to question the way in which such concepts may actually be reified in their adoption in education research. Its use appears to be so commonplace that the concept, which was developed in relation to how class privilege was sustained in French society, one way being through the reproduction of cultural capital, has to an extent become distorted as a totalising reality of the working class in HE. In the case of employability, there is a misunderstanding that cultural capital could be mobilised to improve employability (Rodriguez-Falcon et al., 2011) which is a misuse of the concept. Such a use of the works of Bourdieu has the potential to deny individuals the reflexive capacities in sociological research and practice, which Bourdieu suggested as the way forward (see Bourdieu and Wacquant, 1992). Len Holmes (2013a), drawn on in **section 3.1.3**, developed his

notion of graduate identity explicitly in critique of HCT, as well as this new tendency towards Bourdieu as it can lead to somewhat damning conclusions, creating what he called a 'counsel of despair'. Though, in departing slightly from Holmes, I perceive this as a problem with how the theory has been used, rather than the theory itself.

Therefore, as we have seen, the use of Bourdieu's work to understand decision-making or the ability to make decisions in HE runs the risk of creating a self-fulfilling prophecy of disempowerment on the one hand or buying into the notion of social mobility on the other. Rather than critique the use of Bourdieu or provide a new way in which his theories may help us know more about the questions positioned herein, I aim to side-step these discussions to arrive at a more fundamental, practice-oriented purpose.

### **3.2.3 Critical Realism and Internal Conversations: Margaret Archer**

In a way 'employability development' is common sense. Therefore, the notion that people invest in themselves to ensure they are not precariously employed does seem obvious in the current precarious economic landscape. However, there is little to substantiate how such investment decisions are made, and whether the end assumed by HCT is always economics in support of the political economy. Social inequalities too manifest in various different aspects of everyday life and are important to understand the constraints and 'enablements' of people. Both the theoretical frameworks presented thus far – HCT and the use of Bourdieu – provide some reasons for reaching a certain outcome. What they do not tell us is the process through which this takes place. Here is where the works of Margaret Archer are important.

In addition to not seeing social action in terms of economic exchange, which is what HCT assumes, Archer's theses (Archer, 2003; 2007; 2012) departs from the use of Bourdieu in a number of ways. Archer argue that the theoretical framing of Sociologists such as Bourdieu, Anthony Giddens and Ulrich Beck are limited owing to their inability to balance the role of structure and agency in human social action in decision-making, despite their efforts to do so. Most prominently, Bourdieu's notion of habitus runs the risk of being deterministic. Considering the recent dominance in the use of Bourdieu in research on HE, drawing on Archer's work presents a marked shift in how social action and decision making about the same can be understood. This research will be drawing on Archer to understand decision-making.

To begin, Archer's theoretical framing is Critical Realism. This theoretical framework includes a realist ontology and a relativist epistemology. In so far as reality is understood, there is an autonomous reality which does not depend on our knowledge

of or ability to know it, however what we know about reality through different interpretations is important to understanding it, even if this is partial. Instead, Critical Realists are concerned with:

*[...] mapping the ontological character of social reality: those realities which produce the facts and events that we experience and empirically examine. [...] [They] do not reject either interpretivism or statistical modeling [sic] wholesale. Instead, combining explanation and interpretation, the aim is an historical inquiry into artifacts [sic], culture, social structures, persons, and what affects human action and interaction. However, critical realists approach causation critically, using the partial regularities, facts, and events we encounter in the social world as a springboard or gateway to understand the complex, layered, and contingent processes or structures which cause those regularities, facts, and events. (Archer et al., 2016)*

Simply put, Critical Realists aim to foster an understanding of social behaviour by balancing the position of objectivity and subjectivity, of structure and agency. Archer frames socialisation (including interactions in society and social action) as a morphogenic process, wherein...

*The emergent properties which characterize socio-cultural systems imply discontinuity between initial interactions and their product, the complex system. In turn this invites analytical dualism when dealing with structure and action. Action of course is ceaseless and essential both to the continuation and further elaboration of the system, but subsequent interaction will be different from earlier action because conditioned [sic] by the structural consequences of that prior action. Hence the morphogenetic perspective is not only dualistic but sequential, dealing in endless cycles of – structural conditioning/social interaction/structural elaboration – thus unravelling the dialectical interplay between structure and action. (Archer, 2010a, p.228)*

In an attempt to further analyse this interplay, Archer focuses on the process of decision-making by people as they come into contact with the world and various situations, which is where the process of understanding changes in society occur. Archer argues that when understanding how people make their way through social life, their decision-making process is undertaken through an assessment of the structures in place alongside an understanding of their own situations (even if only partial, based on the epistemological and ontological framing of Critical Realism) which informs decisions and leads to social practice. This is different from HCT which places the onus onto the individual (Boden and Nedeva, 2016), and the use of Bourdieu which tends to over-emphasise the role of structure in defining social action. Veering away from an academic notion of reflexivity, Archer (2003) argues that reflexivity has become integral to everyday life. Accordingly reflexivity and its associated decision-making can be understood through an analysis of Internal Conversations. A highly contested object of study, Archer (2003) suggests that the Internal Conversation itself cannot be known as they are personal and take place

within the private mind space of the individual. Instead, attempts to make sense of it are possible by observing the process of an Internal Conversation as it manifests through speaking about it in terms of 'Concerns → Projects → Practices'. Developing this theory further, Archer (2003) suggests that there are 4 modes of reflexivity, or processes of mediation between structure and agency, developed in terms of those practicing them:

- Communicative Reflexives
- Autonomous Reflexives
- Meta-Reflexives
- Fractured Reflexives

The modes of reflexivity give us an understanding of the process of socialisation under late modernity. Archer developed this theory through the analysis of people's trajectories through life, and subsequently aimed to qualify it through research on decision-making by students as they select and go through university. Developing these modes through three volumes, Archer (2012, p.97) finally attempts to balance the reflexivity practiced by individuals and the relations that people have with others as part of the socialisation process, through the notion of 'relational reflexivity' which...

*provides traction upon how the main tasks confronting young and active agents are tackled, enabling them to make (i) personally meaningful (not instrumentally rational) choices from among the mixed messages they receive and (ii) to achieve some governance over the future trajectory of their own lives.*

Here Archer draws the conclusion, after developing a better understanding of Internal Conversations through empirical research, that socialisation is indeed still influenced by the family unit, and therefore each mode is an interaction between the 'family relational goods or evils', and either a high or low level of selectivity in making decisions. This variation emerges based on the differing extents to which this factor of influence is incorporated into the decision-making process.

A Communicative mode is one in which the individual needs the validation of others – to externalise the Internal Conversation – before a decision is moved to practice. Here, family relational goods are high, but selectivity is low. This means, for example that the Communicative Reflexive may express their concerns out loud, particularly to family members, and then make decisions based on the feedback they receive. However, that interaction makes personal selection weak. On the other hand, Meta-Reflexivity builds on dialogues and critiques, a reflection on reflecting, to plan out projects and practices from concerns. Family relational goods and selectivity are both high. Here, the Meta-Reflexive may observe the reactions to concerns and gain feedback from multiple sources, but the individual is not bound to any suggestions

received, and is selective based on their personal reflections. Autonomous reflexivity is one in which the individual's internal conversations are largely decided by the person without discussing it, and often lead to action based on a rationalised evaluation of their various options. For the Autonomous Reflexive, family relational goods are low, or as Archer (2012) terms them, 'family relational evils', but selectivity is high, implying that the various options can be picked from according to the individual's preference. Finally, one is said to exhibit a mode of Fractured Reflexivity when a disruption occurs that hampers reflexive practice due to the stress experienced. For the Fractured Reflexive, both family relational goods and selectivity are low.

The theory proposes that in the current situation, people are less likely to rely on a communicative mode of reflexivity (Archer, 2007). There is instead a tendency towards an autonomous mode of reflexivity. It is suggested that people will slowly move towards a predominantly meta-reflexive mode in decision-making as the social world continues to grow in complexity particularly as a result of scientific advancement and increasing access to information (Archer, 2012). Fractured Reflexivity remains a less common mode of practice. On this point, one may consider the potentially increasing relevance of this mode as studies begin to reveal an increase in mental illness and poor mental wellbeing amongst students (Thorley, 2017). This mode is fairly underdeveloped through Archer's theses, which is one of the shortcomings of this theory. This theoretical lens will enable the viewing of decision-making as a social process, providing the opportunity to observe how individuals interact with structures while exercising their agential capacity for the same. Although the terms are problematic in the use of value dualism ('goods' vs 'evils'), an observation of the modes through which people make decisions can tell us about the ways in which futures are being constructed by them. The dialectical process of the IC also gives us a better understanding of the influences on the person. This theory will take forward the conceptual considerations from **section 3.1** regarding the multi-dimensionality of students, the variations in potential trajectories from a physics degree sometimes sitting outside of those expected for filling the so-called STEM skills gap, and formation of the graduate sense of self. In everyday life, young people are confronted with a perpetually changing HE and work landscape, and yet make sense of this to 'make their way through the world', as Archer (2007) suggests. Employability falls short on understanding the student's perspective and process.

Currently, employability and arguably employment are seen as an endpoint. Both HCT and the use of Bourdieu to understand youth futures and its associated decision-making reproduce this notion of the individual as being transformed to meet an

economic end. I argue, through the use of Archer, that the 'end goal' is actually less stable because both the individual and the structures are constantly changing. It is instead a dialectical process through which decisions are made that balances the structure/agency conundrum. A better understanding of the transitioning of young people from a degree as a process will reveal the paradoxical nature of employability as an agenda. I will instead consider the process of negotiating a process of transitioning through ICs, as presented by people themselves as they reflect on their own futures.

Through this section I have critiqued the two dominant theoretical frameworks used in research on HE in the UK, focusing on youth employment futures from a degree through the idea of employability. I then presented Margret Archer's work on decision-making, arguing that this perspective offers a novel and important way in which to know more about young people's graduate future trajectories. Archer's theoretical work also works harmoniously with the conceptual framework presented in **section 3.1** and directly influences the design of this research which will be presented in **Chapter 4**. Through this research, I will use Archer's theses on reflexivity in Late Modernity, with a focus on the notion of the Internal Conversations to understand the reflexive processes through which young people think about and make decisions about their future.

This perspective is largely unexplored in HE research. It has only been in very recent years that research has come to consider the potential of using this framework. For example, Burke (2017) offers the argument to adopt a perspective that combines Bourdieu and Archer. Baker (2019) draws on both Bourdieu and Archer and evaluates the use of Archer's works. However, these studies focus on the 'way in' to university rather than on the transition out from a degree. This research deploys the theory to aid analysis of the pathway from a degree.

## Chapter 4 Methodology

Any research requires a methodological framework through which empirical enquiry is made. In this chapter, I will present the process of enquiry and the way in which this research was undertaken along with the rationale for the same. An interpretivist framework was applied to focus on the ways in which students themselves make decisions about their career futures as a process that is ever-changing and influenced by multiple factors outside of a university managerial employability development provision. This is in line with the Critical Realist approach which uses a realist ontology coupled with a subjective epistemology. The methodology used was a narrative inquiry using a case study approach. A combination of these approaches helps to critique how individuals transition through university and into the labour market, and subsequently re-visit the question of the purpose of higher education.

In this chapter, I first highlight the aim and research questions. This is followed by an explanation of the research paradigm, assumptions, and the role of ethics in social research. Following on from this, the framework of a case study narrative enquiry is presented for this research. I then offer the context of this research including the location and how the field was approached. The methods are then identified, followed by the researcher's positionality and finally the limitations of the study.

### 4.1 Narrative enquiry and case studies

The research aim and a set of research questions were arrived at through the process of 'conceptual funnelling' (Marshall and Rossman, 2014, p.73). This implies moving from a broad, general idea or phenomenon to a refined focus of the research. For this study, the first step considered the general phenomenon of graduate employability, and changes in the HE landscape. The guiding question was: 'what are the factors that have an impact on STEM graduate prospects'? Literature searching then focused on employability in STEM and subsequently within the context of a 'STEM skills gap', including uptake of relevant degrees and trajectories following graduation. Based on its location in the HE policy sector, as well as other employment-related policy, 'employability' was seen as a key policy agenda. From here, a further funnelling took place to focus on students as the site of experience, decision-making and service-receipt as employability is repeatedly constructed as 'developed' by individuals. This became the focus of the study after which I was able to identify, through an iterative process, the research aim and questions to guide the research study and serve as important reference points to maintain the direction of the study. As Agee (2009) highlights, a broad-based question often used in the initial

project proposal can be developed into a statement to help steer the research. However,

*[t]hose tentative theories and the questions that result from them may very well change to accommodate data collection or preliminary findings. [...] For example, a researcher may be drawn to social justice issues and therefore choose a critical theory framework, writ large, in the initial stages. As the design develops, the researcher may decide to focus on questions about a particular aspect of a social context, such as social interactions. (ibid, 2009, p.437)*

They suggest that this is particularly the case for doctoral student researchers, and not far from the case of this thesis. Initially, this research attempted to understand the role of social class and the Bourdieusian concept of “cultural capital” manifesting as barriers for those from working class backgrounds to achieve certain elite careers (see Ashley et al., 2015). However, through the course of refining the study, it was found that a conditioning approach to class position and the use of cultural capital to frame concerns in HE was overwhelming in the literature, and as explained in **section 3.2.2**, did not contribute to a better understanding of decision-making about trajectories after graduation.

As the theoretical approach was altered in search of the best lens, so too did the research questions to reflect the change in focus. It became important to focus on a balanced approach to the structure-agency debate in order to focus on understanding agential capacity as young people transitioned to graduates, characterised as actors with reflexive agency rather than mere service-receivers, and therefore the Critical Realism of Margaret Archer was identified as an appropriate theoretical framework for this research. The works of Margaret Archer influenced not just the theoretical approach and process of analysis through the use of the notion of Internal Conversations, but also the methodology and research design. As Critical Realism does not champion the use of a particular methodology, I decided that it was important to explore the research context through quantitative and observational methods, and enquire into processes and practices through qualitative methods. The rich contribution to Sociology by Bourdieu has not been abandoned. Where relevant, the work of this theorist will be used to explain some behaviours. This is in keeping with the understanding that there are constraints and enablements that all people have, which may manifest in different ways for different people.

In order to respond to the questions highlighted in **Chapter 1**, the research focused on the lived experience of individuals to make sense of the stories presented by participants. I used an interpretivist paradigm in line with a critical approach to employability development. This research is primarily qualitative, with some quantitative aspects used for the purpose of context-setting. As this is an empirical study, it is important to recognise this relationship between the theoretical framing

and the methods of enquiry (Denzin, 2009). It follows an existing trend that steers away from a monomethod mode of enquiry in evaluating education and social programmes to adopting pluralistic 'multiple methods' for a more rounded approach to understanding social phenomena (Greene et al., 1989; Johnson and Onwuegbuzie, 2007). Rather than working as individual methods in and of themselves, the research process will use the different methods in triangulation. This implies reflexivity to ensure each method contributes to the broader research. Winchester (1999) warns of the tendency to use triangulation of different methods in order to validate social research as empirical realism and objectivism, i.e. qualitative data are coded into quantifiable models of understanding behaviour. This tends to reveal the persistence of a belief in the superiority of objective knowledge. Simultaneously there is a need to overcome what Crang (2002) called qualitative research orthodoxy, explaining how qualitative enquiry has become prominent but in a fairly essentialised form, with a reliance on semi-structured interviews to collect a seemingly typical form of qualitative data and forgetting that...

*"plurality [in the nature of understanding] means we do need to question the all-too-common assumption that there is one researcher, with an unchanging and knowable identity, and one project with a singular unwavering aim" (Crang, p.652)*

A case study approach alongside narrative inquiry analysis responds directly to the aim to enquire into the process of choosing and decision-making, and a lack of qualitative research with students on accessing 'career futures' through the employability agenda or otherwise, as well as longitudinal studies about youth trajectories following graduation.

Based on the academic literature and policy on employability, there are some methodological assumptions to this enquiry. They are inter-related and as follows:

1. There is an employability agenda or strategy present in some sense at the institution in which this study is conducted. This is based on the focus on employability that is demanded of HEIs in various ways including policy;
2. Employability development provisions are delivered both centrally by the University as well as devolved through disciplinary departments;
3. All students, in theory, have equal access to these provisions;
4. This experience is ontologically framed by the spatiotemporal context of the empirical research study as employability provision is in constant flux and reacts to new information and managerial agendas;
5. All students have at some point undertaken a decision-making process in some strength or semblance that brought them to their degree and particular discipline, or to their career paths
6. Decisions have the potential to influence actions through a process of reflexive, internal conversations (Archer, 2003).

The way in which this enquiry is focused includes a need to better understand the decision-making process adopted by students as they navigate their transition from their degrees to their graduate career futures within the context of employability as a key HE agenda. It stresses the agential capacity and reflexivity practiced by persons when making decisions.

I confined this study to one institution giving it a single spatiotemporal context, and one department within the institution. It enabled me to account for the experience of place, potentially different or shared amongst participants, as well as to control for differences in service-provision by department. The unit of analysis is each individual participant, considered a 'case'. This acknowledges the uniqueness of experiences and interpretation of reality that may differ by person. This in turn influences the different ways in which people come to make decisions.

In addition, narrative inquiry is the process through which these experiences are captured. Narrative stems from storytelling which is a traditional form of sharing information. It may not produce "factual" selves in the objective sense, but it enables the individual to represent their lives. Personal narratives are able to reveal,

*that we live within the tensions constituted by our memories of the past and anticipations of the future. Personal narrative, the project of telling a life, is a response to the human problem of authorship, the desire to make sense and preserve coherence over the course of our lives. (Bochner and Ellis, 2003, p.220)*

This coincides with the conceptual and theoretical framing of this research as it takes further the case for agency in stories and lives as experienced and practiced reflexively. According to Archer (2007), individuals make sense of their lives in terms of personal projects and while it is not possible to know the detail of 'internal conversations' (personal reflexivity) that take place for the individual, we rely on indicators from their stories shared with us.

Because metrics remain a defining way of thinking about employment and employability in terms of its presentation in the media (Arora, 2016), follow-up questions of 'how' and 'why' the decision is reached rarely get answered. Furthermore, qualitative research in this area has tended to relate to decisions made at an earlier stage. Instead, as this research considers the university as a space of becoming, it is important to think of transitioning out of education differently from those transitioning from education to the next step of Education. This methodology is better suited to this research as it recognises the subjective nature of experience (Creswell and Poth, 2017) and by extension its process of decision-making. From a qualitative, narrative inquiry approach it is possible to understand the lived realities behind metrics, offering ground-level answers to problems with macro-level policies. It redirects the focus of enquiry about employability on students to understand their

experiences of ways in which they prepare for careers, and their subsequent trajectories.

## 4.2 Methods

Having located the research, the research tools used for enquiry are identified in this section.

1. Preliminary study
2. Questionnaire
3. Longitudinal interviews

### 4.2.1 Preliminary Study

The preliminary study permitted testing a method or hypothesis with a small group of students who were participating in a summer work experience opportunity, such that it might offer an indicator of the types of responses from participants. This was an important starting point for the research. The group interview was transcribed in verbatim and analysed as narrative. It attempted to also understand if there was value in undertaking a group discussion-based method, and so it was also analysed thematically and as dialogues between people. Eventually the storytelling through pathways of decision-making appeared the best way to identify how individuals make decisions about their engagement with employability opportunities. The findings from this, owing to its introductory nature, were helpful in understanding how to take the research forward. It acted as a spring board to identify aspects that needed further exploration. The findings can be found in **Appendix A**. A number of observations were made, raising questions such as: what's next for these individuals? What eventually happens? How do their plans play out?

The findings revealed that there is no one type of student, despite the informal belief that Physics attracts students who are interested purely in the subject matter. From a random gathering of three individuals, they appear to depict differences in their attitudes. Even in instances of students being interested in the subject matter, their engagement reflected wider labour market dictates. Aspirations may define disengagement with employability whilst some may indeed comply with it. In many ways, this challenges the notion that students are unthinking consumers attempting to stack up qualifications (also discussed in **section 3.1.1**), although it raises questions regarding the purpose of HE. However, HE reflects a stage of transition in young adult lives. This implies that age signifiers are important, however, mobility into a job to which one previously did not have access owing to a lack of a degree, regardless of age, is an important point of transition in adult life within western capitalist society.

Needless to say, this preliminary study helped mould the remainder of the research process. Below are some of the key ways in which this preliminary study contributed to the refining of the remainder of the research.

1. Each participant of the group interview presented a different story and trajectory. Although they had a similar 'end-point' – that of completing their work placement - there was a difference in how they approached reaching that end. Therefore, it is important to have individuals as different cases to better explore practice and rationalisation of the same; individual interviews are more appropriate to this project.
2. The group interview did not follow a definite trajectory. Although it was possible to begin and continue with a vague structure, the responses could not be further explored with a rigid structure. Accordingly, an interview schedule of a semi-structured nature with keywords/themes with space to explore stories in-depth is more relevant to this project.
3. In order to understand the process that young people go through, this may require longer time periods scheduled for interviews, though this will not be to the discomfort of the individual. A longitudinal element will be important for the main study.
4. To have a more fruitful discussion, I need to better understand what the institution currently offers students. To do this, I will document and survey the physical as well as online presence of employability in the school.
5. This preliminary study also raised questions regarding students' level of knowledge about opportunities on campus. To better understand this, a questionnaire will be disseminated to set the context of the awareness of and engagement with such opportunities and thoughts for the future. I will also include a question in the interviews about whether students have heard of or undertaken opportunities offered by the university.
6. It will also be helpful to understand how Physics students distinguish themselves and their subject from others, indeed how they construct 'other' and their perceptions of themselves as well as how others see them.

Based on the results, it was decided that rather than focus on engagement with provision, opening the study to the wider cohort could potentially reveal an array of approaches to employability and graduate futures from a physics degree. It was also found that it was relatively easy for participants to share their stories, encouraging the narrative-based process of enquiry, and stressing the need for open-ended conversation rather than establishing the 'reach' of the employability agenda through strata of engaged to disengaged which was the initial plan. Accordingly, rather than defining the 'moment' or critical event often identified in narrative-based research for the participant, the agency of the participants to define their own personal moments (or using the theoretical framework, the concerns, projects or practices) and reflect on their decisions was a requirement for this research based on the theoretical framework. This also coincides with the suggestion by Denzin (2009) to keep concepts and propositions as primary rather than empirical events which are often constructed outside of the theoretical framing of the research.

The question set was only marginally tailored to remove the specific event highlighted in the preliminary study, and to incorporate a longitudinal aspect of the project. The preliminary study also helped me practice research skills and ability to engage with students from a STEM discipline in a different country.

Reflecting on the analysis and discussion of the preliminary study reveals two things: firstly, had I stopped at one interview, it would have been possible to suggest that the individuals could have either complied with a Bourdieusian view or a human capital theory view of individualisation and value-exchange of HE. It would have been superficial. A desire to follow up on some of the questions resulted in the research being changed to a longitudinal study. This being said, the second observation is that the broad themes identified initially did not change so much, however, the ways in which they came to be understood do differ.

### **4.2.2 Questionnaire**

I attended classes on a compulsory careers module for final year students on a semi-regular basis to understand the content of the module. It also helped the students familiarise themselves with me as I introduced my project at the start during the first observation. I used a questionnaire to understand the engagement of students with existing opportunities and services available to them at University (on-campus and virtual), their thoughts about the potential sector they expected to work in post-graduation, their preparedness for work, and their protected characteristics.

The questionnaire was used to contextualise the research. The methods of dissemination, so as to include as many people as possible, were as follows:

1. Paper copies during a compulsory career-related module: The lecturer provided 15 minutes of class time for this activity. The questionnaire was explained, and the information sheet was attached to the questionnaire. This gained 41 responses.
2. Via e-mail and through the Online learning platform: Those willing to participate could choose from a Word document or responding online via the Bristol Online Survey platform. This gained three responses.

The questionnaire was responded to by 44 individuals in total, out of a class of 75 (approximately 60% of the cohort). It provided students with the opportunity to participate in the longitudinal, qualitative aspect of the research, for which I received interest from 13 individuals. Providing my contact details enabled students to get in touch with me directly and two additional individuals offered their time to participate as a result, both of whom went on to participate in the longitudinal interviews. One of the two admitted to not have filled the survey.

The responses were entered into and cleaned in Excel. Frequency distributions were generated for close-ended questions using SPSS. The findings are presented in **Chapter 5, section 5.2.**

### 4.2.3 Interviews

The questionnaire also served as a recruitment tool for an in-depth, longer-term engagement with the research, as explained previously. I had a total of eight participants for the first set of interviews, which continued until the third interview, after which one dropped out as she was not able to speak to me, having poor connectivity for technological reasons. This arguably reflects a sense of reliability in terms of the information to be presented.

For this research the interview was not adopted as a mere form of extracting data to serve the apparent higher calling of (positivistic) social research, nor the mainstream form as it exists in the “Interview Society” (Atkinson and Silverman, 1997). Instead, the interviews for this study were conversational story-telling, and hence each individual participant is a case study whose narrated experience is in itself valuable and important to understand how people ‘make their way through the world’. It is an in-depth, longitudinal process of interaction. The interview guides used can be found in Appendices D to G.

According to Denzin (2009), interviews, although suggested to be “governed by conventions” (Benny and Hughes, 1956, p.139 in Denzin, 2009), are paradoxically a negotiation of various selves that may come into conflict, and is transformed through the process of the encounter. Interviews, therefore, should not be taken for granted as a mere encounter of strangers, but rather,

*must be seen as a very special relationship, one often freely entered, and one in which information is exchanged (Denzin, 2009, p.134)*

Given that interviews are often encounters with strangers, it is suggested that there is no way to know whether the responses are sincere, or made up (Denzin, 2009). For this study, a longitudinal element as part of the research method may help to eliminate such doubt as the individual would need to ensure consistency at four points over a duration of 14 months. The interviews and their purposes are detailed in **Table 1**. More importantly, as a critical approach to narrative enquiry on a theme related to decision-making, it is expected that the motivation for narrating stories that are apparently falsified are personal. It also contributes to the way in which stories are told, and with a longitudinal element, it is possible to trace how decisions are made through the ways in which stories are created and reshaped along the way for the researcher.

On concluding my data collection, I asked all participants to comment on the impact of participating in this research on themselves. They reported no impact on their decisions *per-se* but highlighted the therapeutic nature of participating in the interviews which enabled them to take stock of their progress through the past year. For qualitative studies, rather than objective facts, this ability to narrate experiences

without the pressure of being influenced is an indicator of reliable data. In fact, this goes both ways. The researcher was at sometimes invited to share their experience. It was an important part of this research to not treat participants as mere subjects of study. In brief, a narrative form of enquiry is well aligned with the way in which I have reflected on my positionality to inform the research process such that power relations and ideologies are neither skewed in the favour of the researcher nor the researched.

**Table 1 Fieldwork**

<b>Interview #</b>	<b>Time period</b>	<b>Rationale, context, delays</b>
<b>1</b>	DEC.2016 – JAN.2017	End of semester 1. Questions about decisions students already made through their various years and why, including their decision to pick their discipline, their initial plans, what they had engaged with so far, and thoughts about what they would do after graduating
<b>2</b>	MAR.2017 – MAY.2017	End of semester 2 before exams where students were asked about their progress through their degree as well as about some themes that emerged from the first set of interviews that related to engagement with opportunities and thoughts about their futures. The themes included communication of opportunities, spatial engagement and mobility (here, I used maps to illicit discussion), and social aspects like gender, class and social networks.
<b>3</b>	JUL.2017 – OCT.2017	After students graduated to enquire into feelings about graduating and thoughts about work and 'transitioning' into work. One participant's follow up was delayed owing to their personal life routine and the time difference as they were away from the UK However, the 'point' of transition was more relevant when we did speak.
<b>4</b>	JAN.2018 – FEB.2018	Six months after graduating participants were asked about their ongoing engagements, and how their time at university and their degree affects what they are doing and will do.

One of the criticisms of the interview method of research is the question-and-answer assumption between participants. Conscious of this, I adopted a somewhat personalised approach to asking questions. I would relate the questions, particularly in follow-up interviews to details they had previously mentioned, or to my own experiences where relevant. This approach made it possible to give the individual space to discuss what was important to them, but also moved away from a question-and-answer style which runs the risk of soliciting responses that are tailored based on the perception the interviewee has of what the interviewer may want.

This approach relates to Empathy. Bednarek-Gilland (2016) highlights that empathy is not taught in methods courses, but is expected nonetheless. I found this difficult initially, working on the assumption that as my participants did not share a cultural background to me, I would not be able to read signs appropriately. Another aspect of this related to when participants revealed very personal, stressful situations like those of dealing with mental health problems. My strategy for dealing with difficult themes was to issue a warning beforehand, or when an individual spoke of distressing

situations, I first informed them that they need not continue if they did not want to, and then offered them the space and time to talk as well as the option to remove such engagements from recordings. I also asked if they had the help they need, and in both cases they did. The analysis of interviews will be discussed in depth in **Chapter 5, section 5.3.1**.

### **4.3 Positionality**

Undertaking interpretivist and qualitative research necessitates a recognition that it is not just the researched that possess their own sets of values, decisions and morals that are to be understood as part of the research, but the researcher too. Furthermore, Carter et al. (2014) stress that in order to tell the stories of others, the researcher must themselves take part in reflexive story-telling, that of their own story.

*An important component of the reflexive approach is to understand our own assumptions and thinking, particularly why we have these assumptions and why we think in a particular way. By constantly questioning ourselves, as the researcher, we are better positioned to be open to the participants' world. (Carter et al., p.364)*

In addition to this call, I relate to the criticism of Bednarek-Gilland (2016) who highlights that empathy or *Verstehen*, a Weberian concept, on the part of researchers is always expected in qualitative research, yet there is little recognition of this and no training on how to best develop and mobilise empathy in qualitative research. It is here that the relationship the researcher sees themselves as having with the researched when undertaking the study must be highlighted. In this section I highlight the ethical process in research, provide my story as positioned in relation to the study and my participants, and how I approached the research.

#### **4.3.1 Ethics**

I make no attempt to “give voice” to my participants, nor do I claim to present the “authentic student voice”, terms often used in the HE landscape from a marketisation point of view. Instead, I present stories told to me, limited by my own interpretation of reality, its impact on my epistemological framing, and perceptions as someone who has an interest and knowledge of HE policy implementation. Reflection on power relations to manifest adversely is an important part of ethical considerations for undertaking research with human participants. I moulded the research process in accordance with the stories of my participants. In this section, I will highlight the ethical considerations for this research project.

Research ethics in the social sciences emerged when researchers began to question the knowledge importance alongside human justice and integrity. They began to ask the questions about the extent to which knowledge production justified conducting

experiments with humans. Following the ethical alarms raised by the Tuskegee syphilis experiment and the Stanford prison experiment, research with human participants has required a number of steps be taken to ensure the safety of participants. In the UK, The Economic and Social Research Council (ESRC) prescribes a Framework for Research ethics based on the following six principles:

- research should aim to maximise benefit for individuals and society and minimise risk and harm
- the rights and dignity of individuals and groups should be respected
- wherever possible, participation should be voluntary and appropriately informed
- research should be conducted with integrity and transparency
- lines of responsibility and accountability should be clearly defined
- independence of research should be maintained and where conflicts of interest cannot be avoided they should be made explicit.

In order to ensure adherence to ethical research practice, the project needed to be ethically approved by the institution in which the researcher is registered. At the University of Leeds, I applied for ethical approval in order to begin my research. Here, I outlined the aims and objectives of my research, the type and amount of data I would be collecting, the potential harm that could come to the participants and the way it would be mitigated, how informed consent would be gained, provision for withdrawal from the research, and data storage.

In addition, an information sheet needed to be prepared with information about the project in accessible language, free from jargon. It needed to contain the overview of the project, who was invited to participate and what they would need to do, what the risks and benefits were, the way in which participation could be withdrawn even after consent is given, the intended use of the data, how confidentiality of responses will be maintained, and finally the contact details of the researcher and supervisor. After reading the information, a consent form was either attached in the case of the questionnaire (Appendix B), or handed to the participant after they read the information sheet in the case of interviews (see Appendix C). When the questionnaire was disseminated in the presence of individuals, a brief overview was given including highlighting that there was no compulsion to participate. The participants then inserted the completed forms in a brown box and envelope placed at the front of the table. Some participants handed it over to me, and I immediately placed it in an envelope. For the interviews, participants were given the information sheet at least a week prior to the interview. On the day of the interview for the first and second set of interviews, a printed copy was handed to participants to read, ask questions, and then sign if they wished to participate.

Participants were also informed that if they did not want to answer a question, they could ignore it. This was reiterated during the interviews. I used encouragement and

acknowledgment of experiences as a way to ensure that I did not ignore any problems they highlighted. Reflexivity in research and a qualitative form of enquiry were aligned with the ethical considerations needed for undertaking research of this nature. It ensures that ethical practice is maintained throughout the course of the study, not just in 'procedural ethics' but also 'ethics in practice' (Guillemin and Gillam, 2004). The structure of the research aims to understand how students themselves present as well as practically negotiate graduate prospects, but it does so by ensuring a somewhat participatory aspect of defining the research. The researcher is required,

*to share some of their power within the research process, which makes the work more complex because of the necessity to redefine and transform traditional power relations in research. (Caretta and Riaño, 2016, p.260)*

However, the messiness of social research is a part of understanding the complexity of our subjects, and a way to ensure that participants, providing their valuable time, are treated with respect is by including them in the research process to the extent that they are happy to help. Reflexivity is an essential part of social research. Hollway and Jefferson (2000) highlight the need to recognise the role of theoretical framing in undertaking analysis, as well as the need for reflexivity.

The research received ethical approval on 02.JUN.2016, under the code MEEC 15-040 with one subsequent Amendment. In addition to the formal ethical framework, in order to ensure I was aware of any potential detriment to participants both in terms of how the interview process was undertaken, and the focus of the study (design as well as analysis), I actively incorporated a reflexive form of social enquiry which included an acknowledgment of my positionality in the research process. This is addressed in the following subsections.

#### **4.3.2 Negotiating the field(work)**

Considerations of two inter-related aspects of social research influenced the fieldwork process. The first from critical feminist geography being 'positionality' and embodied research practice; and the second in the sociology of knowledge being the 'insider and outsider' research dynamic. Both of these were defining features in how this research was negotiated.

Critical feminist geography has been particularly integral to understanding the politics of fieldwork in its embodied sense of practice, in the form of identities performed for the researched. Through an exploration of positionality and embodied practice the position of the researcher in the social world highlights the politics of fieldwork. This helps locate any potential power relations by being aware of the situatedness of knowledge (and knowing) when doing research with the researched other, and to eventually interrogate differences through a sense of '*betweenness*' (Katz, 1992,

p.498). That is, through acknowledging positionality, the researcher is able to recognise their potential impact on the interaction with participants that may cause an imbalance in power in the favour of the researcher, with the aim to mitigate the effects. For example, at the start of undertaking the research I acknowledged the potential problem of participants providing me with answers I would want to hear, making it more of an audit process. In communicating the project to participants, I made it known that I wanted to understand how they personally felt and the decisions they made, drawing on the theoretical approach adopted for the study. Positionality is not an obstacle but an important part of the research process. Rose (1997) suggests to ask how difference is constituted during the research process rather than seeing it as irreconcilable distinction. Power relations are not only in the process of knowledge production on the part of the researcher, but also exist as a fragmentation of understanding and power relations with the researched. For the researcher, power in positionality can be '*a fragile and fluid net of connections and gulfs [...] but also, paradoxically, with uncertainty*' (Rose, 1997, p.317). The politics of fieldwork is therefore often messy and complex, rather than neatly compartmentalised.

At its 'proposal' stages, this project was an attempt to understand the ways in which STEM students from working class backgrounds made their way through university and subsequently into jobs, given the elite nature of Physics in terms of its demography (i.e. largely white, male, middle class). However, to "find" the working class amongst the potential participants required some familiarity with the corresponding codes of social behaviour in Britain with which I was not familiar, being from a middle class background from a country in the Global South. Other ways to identify individuals such as through the Widening Participation provision raised ethical concerns for me as a researcher. Therefore, in addition to the abovementioned and the change in focus following from literature reviewing and alignment with the theoretical framework, it was decided to open the study to all students.

In my research, I consider the embodied politics of fieldwork from a somewhat strange situatedness. I pass as something familiar though opposite to my participants, when I am actually 'none of the above', so to speak. For example, I embody an Indo-Lusophone self and in terms of culture, name, physical appearance and to an extent accent, I often remain ambiguous to most others. I therefore 'pass' on many counts as I could be various forms of the ethnicity category 'Mixed British' based on each and a combination of, my accent, name, and physical appearance. This became evident to me when I noticed that when transcribing interviews with one of my female participants, I would occasionally need to re-listen to pieces of the interview to distinguish my voice from theirs. Furthermore, my name is a combination

of an Irish first name and a Portuguese surname. Another instance is an unrecorded conversation with one of my participants where the confusion with this ambiguity of name-accent was revealed to me in an informal conversation with a participant who expressed surprise at my having undertaken my degree in the Global South. Interestingly, none of my participants asked me about my background, and I assumed this as a result of multiculturalism in British HE campuses.

Although I may have passed in the way described above, I observed that none of the traditional 'insider' privileges applied to me in the sense that although I appear to be a minority ethnicity, I had very low uptake of the questionnaire from minority ethnic participants (or their willingness to classify themselves thus) despite handing out a questionnaire in class and observing a few participants who could have classified as a minority – 'mixed' or otherwise. Therefore, I remain an outsider in many ways whilst simultaneously being an insider, neither and both (Sultana, 2007). Subsequently, my positionality of embodying the lived experience of someone as 'opposite' and traditionally less privileged in British society for being a woman, a migrant from the Global South or passing as an ethnic minority from the UK as well as being a social scientist speaking to natural scientists, thought potentially unbeknownst to participants, influenced my preparation for interviews and the relationships built as part of the research. I became an invader of this space (Puar, 2004). All of these aspects have been negotiated to ensure that any bias is alleviated on the part of the researcher. It was fairly early on that I realised that my disprivilege in British society potentially would balance the scales of power either away from myself, or towards myself in the form of 'aid' from those willing to participate. However, when I did ask them, participants indicated that they were intrigued by the (social) research, wanted to be of help for the project, wanted to make a point because they thought the research was important, or in one instance the participant said I appeared to be kind when I invited participation and they wanted to help me however they could. The only way in which this could have influenced participation was through my physical appearance, potentially manifesting in my pleas for participants, where I felt a certain awkwardness as I invited a room full of white, British young scientists as potential participants to help me. However, this could not be controlled for. From the stories offered by my participants, it does not seem the case that I attracted only those actively engaged with every aspect of the university, but rather a range of stories were shared. This was ideal for my study as it included a variation in engagement with services from very engaged to minimally aware.

Undertaking fieldwork is an emotional process, and in line with a critical geography approach, it is important for me as the researcher to lay out my own perspective and biases, and how I have aimed to address them, or how they have influenced the

research process. This is an integral part of undertaking ethical qualitative social science research. To begin, I adopt a critical position of Britain as a player in global politics, particularly in relation to its own history of exploitation through the slave trade and colonialism. Therefore, I approach the HE landscape from a post-colonial perspective, wherein I see the current 'advancements' in Britain as a consequence of its exploitation of the peoples from the Empire (Shahjahan and Morgan, 2016). Another aspect worth mentioning is my experience of HE in the Global South which although massified too, followed socialist principles of HE being a public, affordable good. This has shaped my notion of HE provision as a public service that ought to be affordable by all. I therefore adopt a critical approach to the neoliberalisation and marketisation of HE. In addition to this, as someone from the Global South, I feel that privileging an institutionalised view of knowledge production violently obliterates the lived realities of those who produce knowledge outside of it.

It is this perspective too that makes me critical of the privileged position of science in society which can be equated to the privilege provided to religion and the Divine in the pre-enlightenment era of European thought. Here, I want to clarify that my critique of a system is separate from the actors that engage with it. These critiques are informed by literature on these themes as highlighted in **Chapter 2**.

#### **4.4 Limitations of data collection**

Although the methodology has been approached with care and consideration – not the least through the processes of proposing the research, applying for ethical approval, a mid-year transfer report, and a first year transfer exam – there are still aspects that may fall short in terms of the methodology and data collection. These were discussed with academic peers at methodology-related training and presentations in departmental research meetings. In addition to the methodological concerns addressed previously, concerns falling into two broad categories were identified and addressed as follows.

*Time period:* In order to understand trajectories, slow, in-depth scholarship is important to understand the context and complexity of transitions. However, the points of contact were limited by the duration of a PhD. Accordingly, a shorter duration was focused on to achieve the objective to trace how students make decisions immediately prior to and after procuring a job or going on to other post-graduation trajectory. This does not tell us about the decision-making as it happened prior to or after the time-period of research. This was overcome by specifying the time duration and presenting an appropriate argument for the same. Here, research is abundant on decision-making up until university including viewing it as a process (Foskett and Hemsley-Brown, 2001; Ball, 2003; Patiniotis and Holdsworth, 2005;

White, 2007; Winterton and Irwin, 2012; Donnelly and Evans, 2016), while at university (Glover et al., 2002; Appleby et al., 2012; Andersen and Hansen, 2012; Allen and Hollingworth, 2013; Brown et al., 2016) and on completion of a degree. However, it does not include the process of transitioning. Therefore, the time period for the data collection was negotiated to take place over 20 months (including preliminary study and questionnaire) with a focus on in-depth interviews taking place over a period of 15 months. This is where the gap lay.

*Low numbers:* This research was with a single subject area at a single institution. It was also a convenience sample, and the 8 Cases are not generalisable. A potential concern about studying one institution is that it offers limited insight into the larger HE landscape. However, there are two broadly-framed reasons why multi-site research is not part of this research. First, in the UK, although a central policy exists, each university adopts the policy to suit its own agenda. Therefore, every University would set its agenda to suit the demands of the institutions. For example, amongst Russell Group Universities, Farenga and Quinlan (2016) found that there are broadly three types of Employability strategies that each university would adopt to best suit the culture and nature of the institution; the premise of each is as follows:

- *Hands-Off: students should be autonomously responsible for taking advantage of opportunities and that the academic programme will meet many of their needs (p. 16)*
- *Portfolio: programme should be flexible and modular, enabling students to pick and choose amongst a portfolio of offerings. (p. 16)*
- *Award: engagement with academics to co-teach a structured, coherent programme that is formally badged. (p. 17)*

Secondly, as the study aims to understand the experience of the student, it is important to contextually locate it as an in-depth case study of the practiced realities and processes of negotiation of students, as opposed to an aim to be representative of a wider landscape. Generalisability therefore comes from potential relationship with other literature, i.e. being part of the whole, rather than it being the whole in itself. An in-depth study offers a focused context based on which the multi-faceted nature of a phenomenon can be explored, and relates directly to the aim of the research, and contributes to the validity of the assumptions of the research. The participants were final year students on the BSc in Physics. In order to minimise variation in expectations from a degree programme, students on the four year integrated masters (MPhys) programme were not included in the study as they would perhaps not replicate the sense of urgency in transitioning as those moving to their career and employment future. Those going on to do a separate Masters qualification could still be part of those on the BSc programme.

With these limitations highlighted, it was possible to carry on with the research.

## Chapter 5 Findings: Case Context

The context of this research is detailed as part of the documentation and embedding process of the researcher into the research field. I actively built rapport with appropriate gatekeepers and learnt about the processes in the institution to be able to undertake the research. This chapter presents the location of the site of study, the formal provisions of employability, and the results of a questionnaire carried out with the students participating in a compulsory module prior to conducting interviews. In the final section, I introduce the way in which individual case studies will be used to take the research further.

### 5.1 Location

The location for this research is referred to as 'Yorkshire Urban' to reflect that the research took place in the North of England within Yorkshire and the Humberside, and works within an urban setting. Both these terms are open to interpretation so as to achieve some sense of anonymity, but also to hint at subtle divisions in British society. For example, the North-South divide in Britain has been understood in terms of socioeconomic inequalities which also intersect with ethnic diversity in access to HE (Donnelly and Gamsu, 2018). This relates to the industrial history and unemployment in the North. This, for example, plays out in health inequalities in the geography, compared to the situation in the South (Möller et al., 2013). This has a knock-on effect to create or heighten other forms of regional disparity.

The Physics department in the institution that will be called Yorkshire Urban University was the host location for the study. Being a Russell Group institution, it was possible to use the categorisation identified by Farenga and Quinlan (2016) to characterise the employability method in Yorkshire Urban University. Based on my observations from embedding myself into the research context, I would classify Yorkshire Urban as a 'Portfolio employability' university. The opportunities provided to participants are manifold and there are various ways in which individual students can access these services, providing all students with a range of pathways and opportunities through which to 'develop' employability. For example, there is a strong digital and virtual presence for this agenda. Students can identify opportunities to develop particular skills including access to funding (see **Figure 2**), voluntary opportunities (**Figure 3**) and a record of how participation in activities and modules relate to skills-development. These were classified under employability skills (**Figure 4**). In addition, there are academic and non-academic opportunities communicated via traditional forms such as notice boards in common rooms and areas, as well as through a careers website, and through the Students' Union.

Figure 2 Funding opportunities via online platform

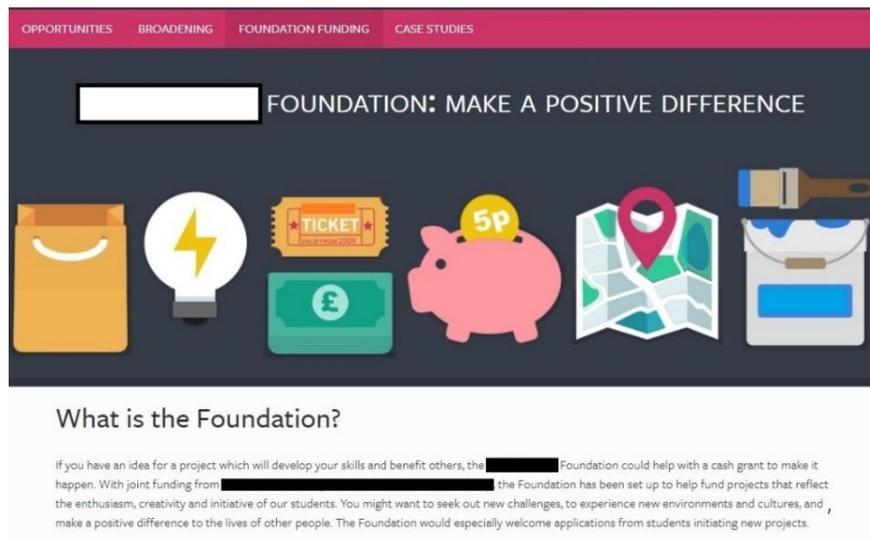


Figure 3 Voluntary opportunities via online platform

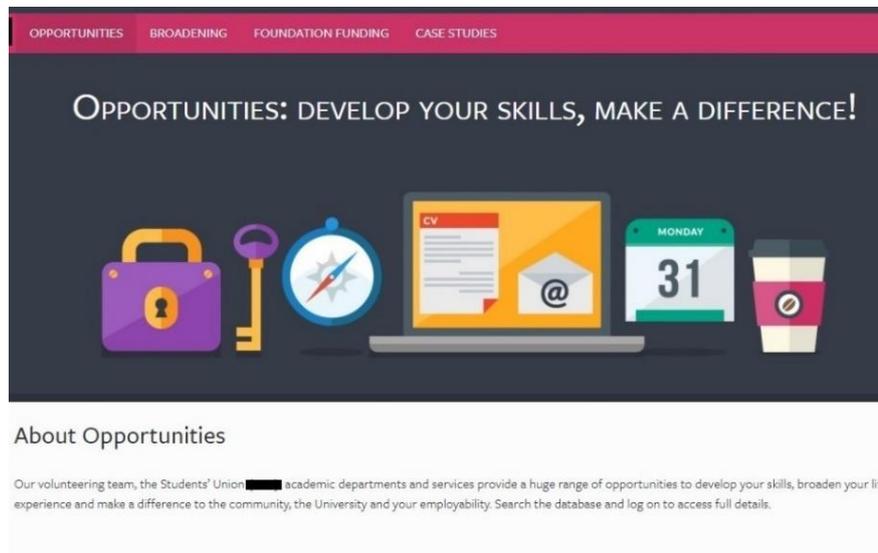
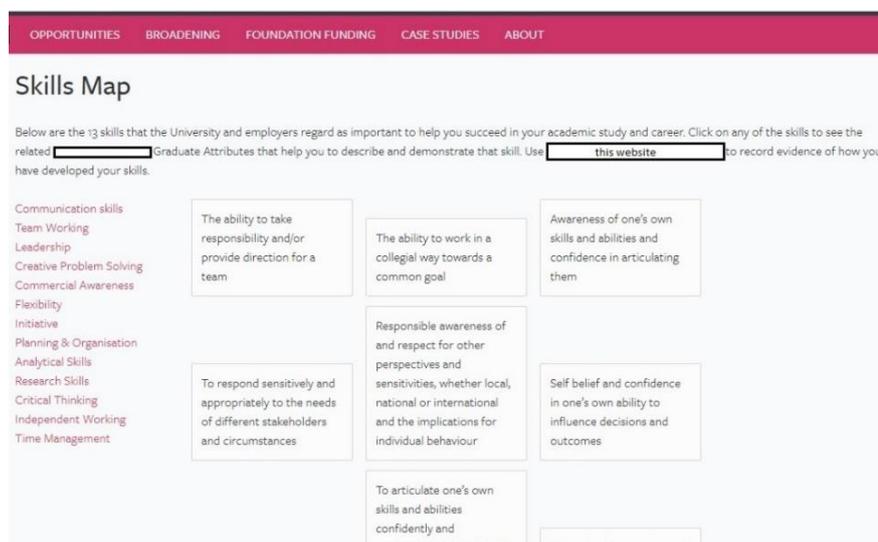


Figure 4 Skill mapping via online platform



The university structure is such that each department<sup>1</sup>, although it adopts broader principles, functions at a micro-level where implementation is tailored to suit its discipline and students. Incorporated into the curriculum deliverables of the undergraduate programmes at Yorkshire Urban is the theme of 'employability'. All departments must reflect on how this is offered to students, and take steps to highlight the same. Having knowledge of these structures helped me embed myself in the research context while also guiding the facilitation of conversations with participants. If they referred to something, I was able to locate it within the structured offer, but having had no lived experience of it, was able to accept the interpretations of participants themselves of their experience with such structures.

The department in which I conducted this research identifies its employability provision in multiple ways. A key event is a whole day organised by staff in collaboration with students, alumni and some businesses to present various possible trajectories of employment to students from all years of study. In the initial stages of developing this research I had hoped to accompany participants to one such event. However, none of my participants were attending these events as it was their final year of study and they did not feel they would gain from it as much as they did in previous years. For those who would potentially miss out, wilfully or otherwise, there is a provision of a career-related module which is a compulsory component of the degree programme. Therefore, all final year BSc students – from whom my participants belonged as a cohort – had access to the contents of this module. This module offered students a variety of ways to approach the 'world of work'. That module became the primary site for embedding myself amongst the potential participants for the study after rapport with the gatekeeper was established. The objective for attending the lectures of this module was to:

1. Familiarise myself with information provided to participants on a compulsory basis
2. Undertake Observations, which was abandoned as a data collection method due to a lack of interaction from students with course content in the classroom.
3. Make myself familiar, visually, to the potential participants and subsequent dissemination of the questionnaire, minimising the reliance on a gatekeeper to invite the participants to the study.

## 5.2 Questionnaire

The questionnaire covered students' use of services, awareness of the same through virtual and physical spaces, engagement with work during studies, thoughts about work after graduation, and characteristics of the respondents. What is interesting to

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<sup>1</sup> I will refer to differences in disciplines as ordered as separate departments in this university.

note is that the provision on offer itself was constantly changing. This information was collected alongside the first interview. By the point of contact for interviews, the virtual interface of keeping a record of one's employability was undergoing a change, and some aspects were being merged with others. At the time of writing the thesis, this interface and the University website had both transformed completely and plans were being made for a physical move of the department.

### 5.2.1 Use of services

Of the class of 75 students, 44 (56%) responded. There is no statistical significance for this number and a statistical analysis was not intended. Therefore, the figures presented here must be treated with caution when considering the possibility of generalisation. **Figure 5** represents the first set of questions regarding student use of existing services and opportunities. These services and opportunities were listed on the departmental website related to employability. Amongst the 44 respondents from this cohort, it appears that career fairs (89%) and student union societies (52%) were the most engaged with services on campus. Opportunities embedded within the programme such as a Year and Industry and the Year Abroad had a low uptake, though, as with the summer placement, these were more popular amongst MPhys students. A third of Bachelors students had visited the careers centre, but only 2 had visited the Careers advisor in the departmental building. In general, it appears that the respondents from this cohort did not participate extensively in employability-related activities. For those who did engage, the reasons were a combination of skills development, improving knowledge of job and career prospects or finding out what employers want (in the case of career fairs), CV-boosting, socialising, physical activity and 'just for enjoyment and getting a break from Physics'.

*Question: In a few words, can you tell me why you engage with these activities?*

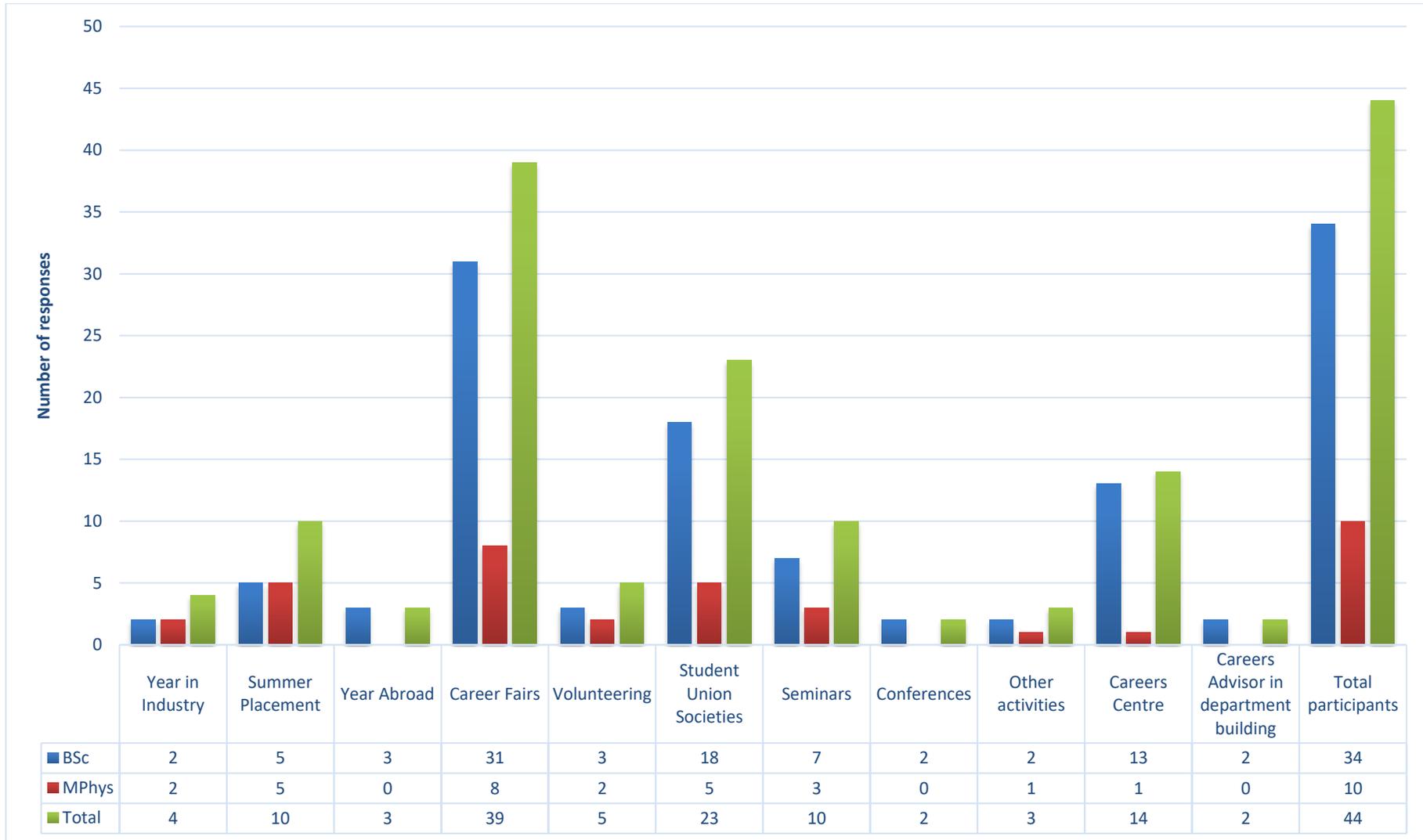
*Respondent 33: To gain relevant experience to make getting a job easier / make my CV stand out. To find out about future career paths.*

*Respondent 15: To keep fit and socialise; Improve employability*

*Respondent 29: I like surfing, really like gymnastics, keeps me fit, acts as a break from physics, I teach surfing also*

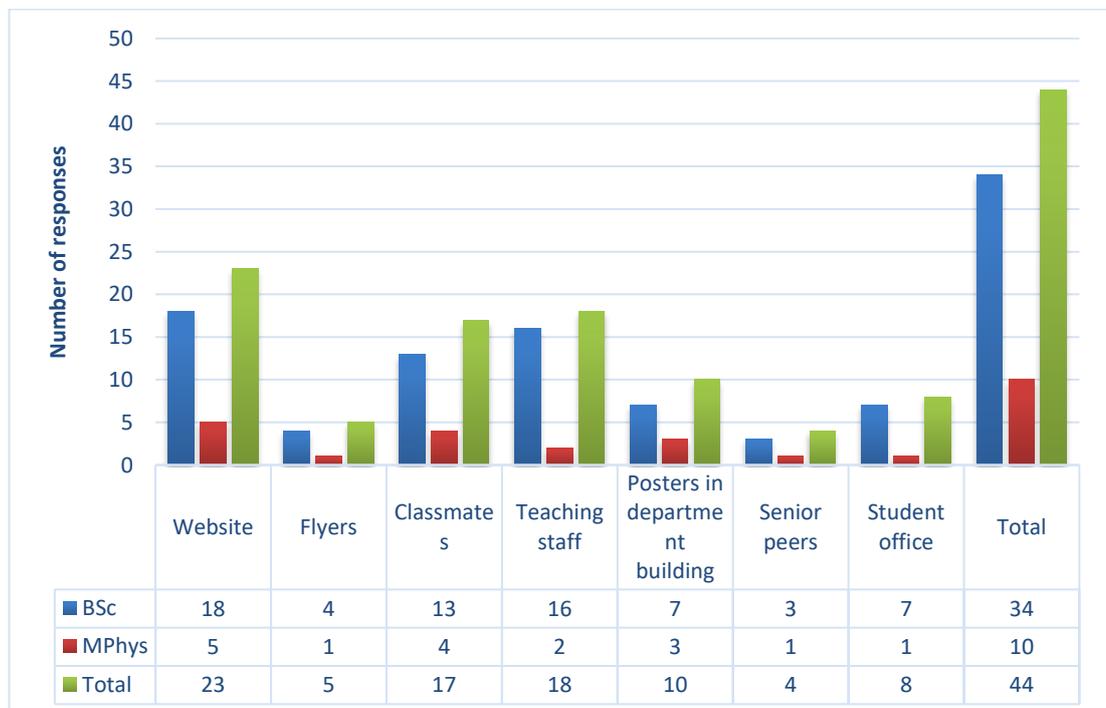
Here we are reminded that students, although aware of the demand placed on them to become employable (Tomlinson, 2016), also approach university life as a social process that influences their selves and group relations. One may also be critical about the extent to which all students are equally able to engage with such opportunities. For example, these activities may be more accessible to those who live away from home and are free from financial constraints.

Figure 5 Engagement with services available at University



Opportunities are communicated via a range of media, and so it was important to understand the source of information for respondents. **Figure 6** details how these were used. There is one limitation which was unfortunately an assumption on my part as the researcher – e-mail was not added as an option; however, some did add this when selecting the option ‘other’. Perhaps e-mails are more important given the constant need for students to check their e-mails for information about course content. The responses show a tendency of the participants to rely on the website for information, though this is only half of those surveyed. Another important finding is the reliance on classmates and teaching staff regarding information about the various services available. This reveals the use of services as a combination of a virtual presence with a human element. Rather than the physical presence such as in the case of flyers and posters, the website appears to be more frequently used for information. However, this does not remove the importance of the physical material. A website would be a case of convenience, whereas flyers and posters can serve the purpose of triggers for a certain thought, often enabling them to be passed by without active notice. The human element also appears to have a condition; it requires a closeness in relationship than a general one. For example, rather than ask for information at the student office, students were more than twice as likely to seek information from teaching staff. Similarly, students would rather ask their cohort members about information than their senior peers or the student office.

**Figure 6 Information about services**

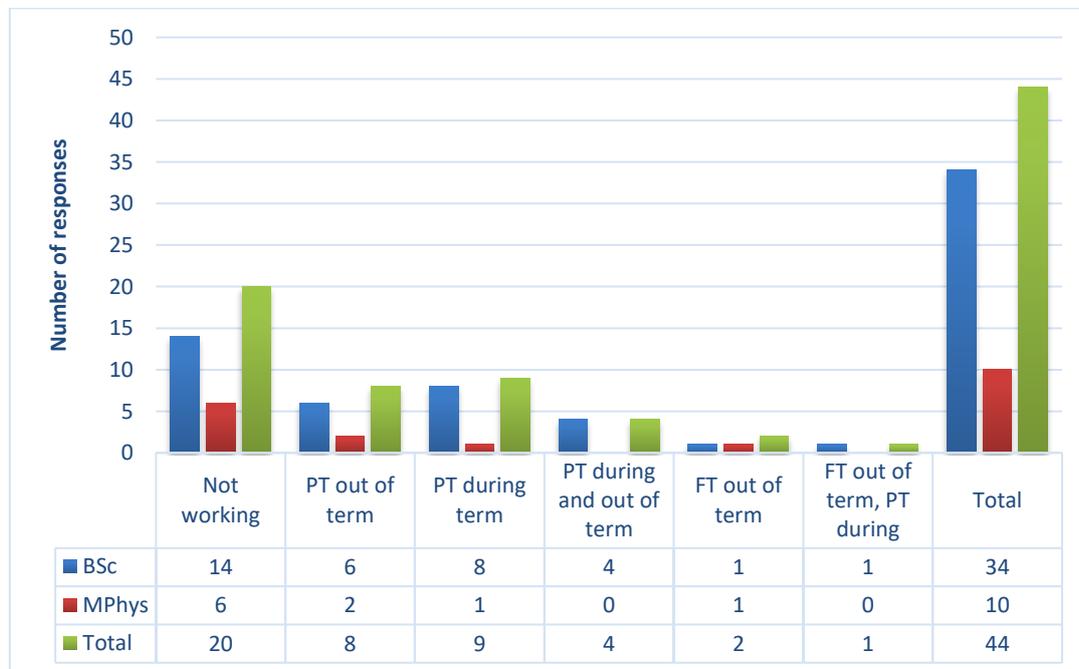


In part, this explains the reasons for engaging with certain activities as seen in **Figure 5**. Career Fairs and Student Union Societies are activities that are encouraged through a strong web presence and are sociable, communal activities.

### 5.2.2 Experiences of work during degree

Moving on from services as triggering thoughts about work, the working status of students was enquired into. **Figure 7** shows that over half of those who responded to the question about working while studying, had experience of the same when asked in their final year of their programme. From the division between programmes, it appears that BSc students were more likely (almost two thirds) to be working during their studies than MPhys students. Overall, an equal number of respondents worked part-time during term and part time out of term time.

**Figure 7 Working during studies**



When broken down by socioeconomic background – or class – both class groups (self-classified in an open-ended question) were almost equally likely to take up work (working class participants were 3% more likely to work). However, the time spent on work differed significantly between class groups amongst this cohort of young people studying towards the same degree. Middle class students never worked full-time. They worked either part time during the holidays or during term time. Meanwhile, working class students rarely worked only part time during holidays. They were more likely to work part time during term time, part time both during and out of term time, full time out of term time, or full time out of term coupled with part-time during term time. It must be flagged here, that the number of respondents are very low; statistical significance must be viewed with caution. These findings are not new. The trend of

young people – particularly from working class backgrounds but increasingly across class groups – working during their studies was highlighted in **Chapter 3**. What is interesting here is that the time spent on undertaking work did differ by class. Because of the subtlety of this, rather than a focus in this research, class was not enquired into with participants unless they highlighted it themselves.

**Table 2 Students working while studying**

	Working while studying						Total
	No	PT out of term	PT during term	PT during and out of term	FT out of term	FT out term, PT during	
<b>Middle Class</b>	11	7	5	2	0	0	25
<b>%</b>	44%	28%	20%	8%	0%	0%	
<b>Working Class</b>	7	1	4	2	2	1	17
<b>%</b>	41.2%	5.9%	23.5%	11.8%	11.8%	5.9%	
<b>Overall</b>	18	8	9	4	2	1	42
<b>%</b>	42.9%	19.0%	21.4%	9.5%	4.8%	2.4%	

Regarding the nature of the jobs, a majority (10) worked in hospitality-related roles which included delivery work, waiting and bar work. The next most common was Administrative, marketing and finance-related roles (6). These were mostly entry-level and therefore have been coded together. There were others supporting learning and education (4) including tutoring, exam administration and summer camps. The remainder each engaged in retail, security, performance, cleaning and web design.

The reasons for either undertaking work during their studies, or not doing so was explained by 41 respondents. This was an open-ended question and responses were coded to get an overview of the reasons. The question asked was:

*Question: What kind of work do you do, and why? If you do not, why?*

Many of those who worked felt that the financial aspect was what influenced their decision the most (14), of which 5 also mentioned the possibility of developing or enhancing their skills in relation to future employment. The flexible nature of the work to suit their student life was also important (3) as it appeared some assumed having a part-time job to be general practice.

*Respondent 6: Pizza delivery, allows me to earn money to fund myself through university as well as improve skills*

*Respondent 33: Bar work, tough to find another job with the flexibility to allow me to go back to over holidays*

*Respondent 23: Security, need the money.*

It must be noted that these figures may or may not be inclusive of work at previous years of study. One response revealed this shortcoming.

*Question: Do you work during your studies?*

*Respondent 43: No*

*Question: What kind of work do you do, and why? If you do not, why?*

*Respondent 43: Worked part time in first year when I had less studying to do, but once school work increased my part-time job was the first thing to go*

Amongst the 18 without a job, 12 did not work because they felt they needed to dedicate their time to their study, particularly in cases where they did not feel the trade-off (study time converted to earning time) was possible, beneficial, or even needed at all in their case.

*Respondent 9: I don't feel as though I have enough free time outside of university for a job*

*Respondent 20: Dad helps with money as well as loans of course. Don't want to have less time to study.*

*Respondent 21: Want to dedicate time to degree. No point paying £9000 and not doing as well as you might have done.*

*Respondent 25: Don't need the money and I can't be bothered*

It is important to appreciate the honesty in some of these responses. Going to university to study for a degree implies a learning journey. Massification does not change this aspect. However, changes to HE has increasingly become enforcing of a triad of student life as relating to study, social life and work. For some students, socialising and study took up all their time; for others, study became the prime focus; others still made time for work largely in order to sustain themselves or to contribute to their CV-building, however this latter aspect of CV building was less common in and of itself.

### **5.2.3 Plans for future**

Thinking about their futures, participants were asked about the nature of the industry they intended to go into following graduation. The responses were coded from an open-text space and therefore included multiple diverging options in some instances. Once coded, the types of industries fell into the broad categories of IT/Engineering, Finance, Research, Teaching, and/or Science Communication, and some Undecided. The categorisation based on first responses are provided in **Table 3**. When asked about the process for getting there, they all identified either continuing with education or training, or applying to graduate schemes, including applying for internships in some cases to strengthen their applications. One of the individuals who felt they were undecided wanted to wait until graduating to think about what to do.

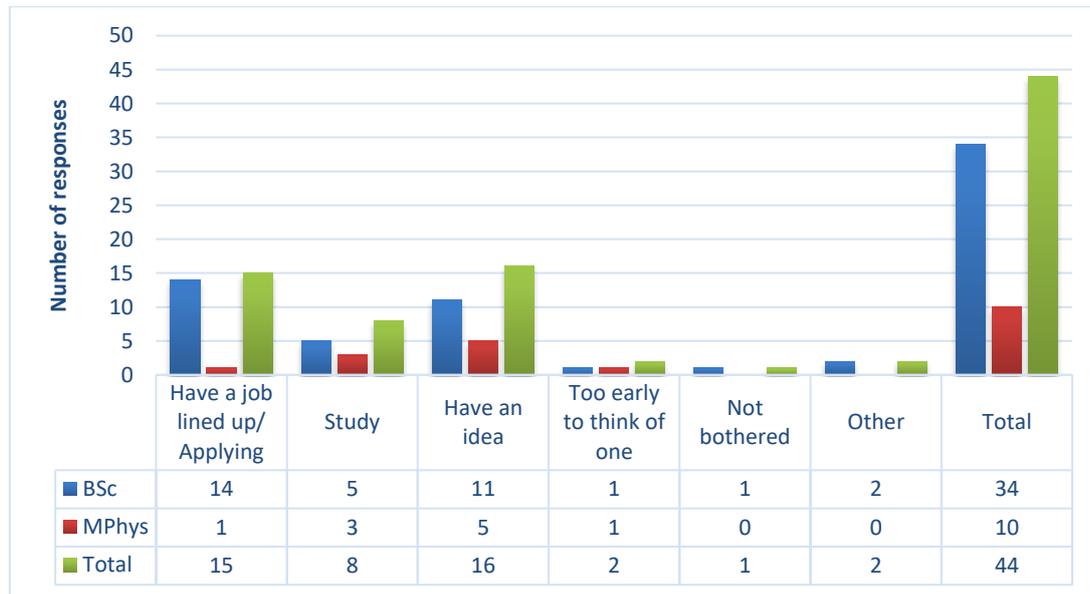
**Table 3 Industry of interest for future jobs**

Broad Category	Industries identified	Frequency
<b>IT/Engineering (9)</b>	IT	4
	IT/Engineering	2
	Engineering	2
	IT/Teaching	1
<b>Finance (12)</b>	Finance	7
	Finance/Civil service	1
	Finance/IT	2
	Finance/Teaching	2
<b>Research, Teaching, and/or Science Communication (18)</b>	Conservation	1
	Medical Imaging	1
	PhD	1
	Research	7
	Research/Film-making	1
	Research/Finance/Music	1
	Research/Teaching	3
	Science communication/Teaching	1
	Teaching	1
Teaching/NGO	1	
<b>Undecided (2)</b>	Undecided	2

Students were asked about their plan following graduation. Employability is often understood through the proxy of getting a job. As a result, one ‘Career planning’ technique construes decision-making to be a process of ‘Deciding, Planning and Competing’ (Gilworth and Dray, 2016). Deciding intended to suggest that the individuals ideate regarding the various opportunities available to them. It is expected that one is decided by the end of the first or second year of study, ideally the former. Planning relates to the process of preparing for the decided-upon path. Finally, Compete would be the act of applying for various jobs. There are considerable limitations with such a perspective as it sees decision-making as a straightforward and linear pathway through three very complex steps. Perhaps this would be more relevant to focusing on getting ‘any job possible’ upon graduating, rather than preparing for a career future. In the context of a career, the first stage itself, ‘decide’, cannot take place without the other two steps, and a decision would potentially be involved in the entirety of the planning and competing processes. Furthermore, the notion that one can decide on a career path in relation to a certain discipline ignores the various potential experiences one may have of university right until the last year when one is, apparently, already expected to compete. This places an unnecessary burden on individuals and can be negative for society as a whole. It assumes that the pathway expected by the individual will be achieved, when in reality it includes other forces not limited to the economy, political situation and employers’ demands. The case stories presented in the next chapter will reveal these problems. The theoretical framing of Internal Conversations by Margaret Archer discussed in **Chapter 3** also raises some problems with seeing ‘decisions’ without a plan and action, or rather projects and practices respectively.

The respondents to this questionnaire had, more likely than not, considered their pathways from graduation. As seen in **Figure 8**, almost 90% of the participants either had a job lined up or were applying, wanted to study further, or had an idea of what they would do. Only 3 felt this was irrelevant to consider. Again, there were differences in level of perceived preparedness for the world after graduation by class. Interestingly, those from working class backgrounds were more likely to already have a job lined up or were applying (41.2 % compared to 28%), or had an idea in mind (41.2 % compared to 36%). They were however less likely, statistically speaking, than their middle class counterparts to consider studying (11.8% compared to 20%).

**Figure 8 Plan after graduation**



**Table 4 Concerns about work**

Theme	Example Quote	Concern sub-theme	Frequency
<b>Relating to nature of work and finding it</b>	<i>Settling in to unsatisfying but comfortable job. Waking up one day to realise I've wasted my life (Respondent 6) All jobs will go, as so many young people gaining good degrees, unlike previous generation. Might be in/ end up in job I don't like and not nice people. (R 37)</i>	Job Uncertainty	7
		Unfulfilling Work	7
		Job Uncertainty and unfulfilling work	5
		Job Uncertainty, unfulfilling work, money	1
<b>Work and living situation</b>	<i>Not being able to afford things (R 24) Debt, Debt and Debt. (R 36) Having a poor choice of location options - having to relocate to somewhere undesirable for a career. (R. 41)</i>	Cost of life (future family, housing, further study)	6
		Cost of life and job fulfilment	1
		Over-working	1
		Location (work, home)	3
<b>Personal disposition</b>	<i>That I can't hack it and fail (R. 28) Losing passion and enthusiasm due to work life taking over (going to make sure this doesn't happen). (R. 43)</i>	Imposter Syndrome	4
		Expectations from life conflicting with finding work	2
<b>None</b>	<i>None really. Not v. worried about getting a job, look forward to it. (R. 42)</i>	None	3

A question on concerns they had going forward revealed some unexpected responses. Of those who identified a potential concern, 20 felt their concern related to the nature of work and/or finding it, the concerns of 11 related to creating a balance between work and their future living situation, six had concerns relating to their personal dispositions, and three felt they had no concerns. **Table 4** details these categorisations. Nevertheless, they mostly felt that they had skills developed through their degree that would help them with their work futures.

### 5.2.4 Respondent demographics

A final section of the questionnaire gave an overview of the demographic aspects of the cohort who responded to the questionnaire. From **Table 5** it is possible to suggest that the cohort was dominated by young, British white male individuals, more than half of whom were middle class. It is also interesting to note the differences in demography by programme – BSc and MPhys students had a different demographic makeup, with those on the BSc degree programme more diverse than those on the MPhys degree programme.

**Table 5 Respondent demographic characteristics**

Degree programme		BSc	MPhys	Total	Total %
<b>Sex</b>	Male	26	6	32	73%
	Female	8	4	12	27%
<b>Age</b>	18-24	34	10	44	100%
<b>National status</b>	UK	30	10	40	91%
	EU	4	0	4	9%
<b>[Access scheme]</b>	Yes	1	1	2	5%
<b>Funding</b>	Scholarship	0	1	1	2%
	Parents	13	4	17	39%
	Loan	34	10	44	100%
	Own	9	3	12	27%
	Other	0	0	0	0%
<b>Socioeconomic Background</b>	Middle Class	18	7	25	57%
	Working Class	14	3	17	39%
<b>Ethnic Background</b>	White British	27	10	37	84%
	White Other	3	0	3	7%
	Mixed	1	0	1	2%
	No response	3	0	3	7%

In previous sections, there were instances in which class background influenced differing experiences of university life, such as over-engagement of working class students with work compared to their middle class peers, and a reduced likelihood to continue studying further following graduation. A low number of participants means that it is not possible to deduce any causation from this, however, it is reflective of findings by Reay et al. (2010) of disparities in experience at university.

### **5.3 The argument for an in-depth, qualitative, micro enquiry**

The questionnaire offers an introduction to a cohort of students studying the same discipline that is considered highly employable (based on DLHE statistics from previous years) as they engage with employability and think of their future prospects during their final year of degree study. From the responses presented in the questionnaire, it appears that individuals are provided with the tools to think about their future in terms of what employers may want. To an extent, the individuals are aware of these aspects. What stands out, however, is the sheer level of engagement with various activities. The amount of activities young people are expected to engage with over the years has potentially led to these aspects becoming embedded in university experience and life. For example, undertaking work is not often acknowledged as being predominant amongst students; the implications of this on education and psychological wellbeing are rather under-studied. Furthermore, and most relevant to this research, the individual must bring themselves to weigh out various options and make decisions as they transition from their degree. There is limited work on the perceptions and experiences that individuals have as they transition from their degree. Therefore, although students may be equipped with the

appropriate terminologies and check-boxing activities offered to them, considering aspects that are important on a personal level alongside the structures that limit or enable them appears to be severely limited in research on employability. The questionnaire offers a glimpse into the concerns that young people may have as they think of their future trajectories alongside an understanding of what enables them to overcome the same when thinking of processes of transitioning from the degree. The themes discussed in **Table 4** can aid a more qualitative element of research. The questionnaire alone is insufficient in understanding why and how people make decisions. It also does not have the scope to capture the processes through which decisions are made and re-made reflexively to suit an ever-changing landscape. The lived experience of negotiating this landscape is the focus of this research and was enquired into using in-depth qualitative methods.

### **5.3.1 Analysis of interviews**

Analysis included considering each individual as a case study. Each case study had 4 time-points of contact, save for one where follow-up was not possible. I will refer to the case study in its presented form as a 'case story' to suggest them being storied rather than only analysed and presented. These points of contact were temporally-defined to account for potential changes along the way and was analysed in order of their occurrence with reflection on previous responses. In practically undertaking the analysis, the conversations were summarised, reflecting the 'coding' technique, however this was to help link responses through the conversation to establish if there was a flow of a story, rather than it contributing to a thematic analysis. There was no software used for this. Although I used the qualitative analysis software NVivo for transcription, my preference for a more tactile engagement with the text, owing to the type of analysis, took precedence.

The process of the Internal Conversation as Concerns → Projects → Practice is used to present these narratives (Archer, 2003). Where it was evident that individuals had a driving force of influence, this was identified as a concern, and its consistency across the interviews and relevance to the decision-making process regarding a career and/or job was noted to aid the process of storying. I decided to use the research questions to focus the research, but also incorporated other factors, depending on their prominence in the discussion (i.e. if they said this had a severe impact on their decisions). For each point in time, previous decisions were recounted in relation to the theme, and new concerns were added. In addition to this, the field notes made following the interviews were consulted to check if there were any additional points for consideration.

The process of analysis is presented in **Table 6**. For Interview 1, concerns, projects and practices in the past formed a considerable proportion of the interviews. The

factors of influence as highlighted by the participant were noted. Concerns for the future were then considered as well as projects the individual had in place. For Interview 2, projects from Interview 1 were followed-up on in terms of how they manifested as practice. Alongside this, themes that emerged from Interview 1 relating to past decisions were reviewed to understand if there was an element of temporal transitions. New or shifts in concerns and projects, if any, were noted again. Interview 3 was analysed by assessing projects or practice based on concerns and projects from Interview 2. It returned to previous themes identified from interview 1 to trace their temporal transitions. New or shifts in concerns and projects, if any, were noted again. Finally, for Interview 4, the projects and practices that resulted from concerns and projects from Interview 3 were followed up on. As with Interviews 2 and 3, some long-standing overall themes were followed up on to trace their temporal transitions.

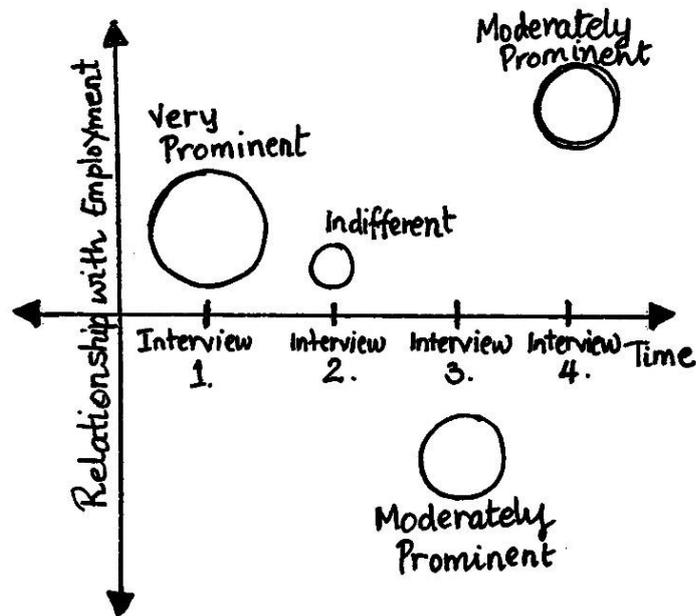
**Table 6 Process of analysis per-participant over time**

Contact with participant			
End semester 1	End semester 2	Graduation	6 months post-graduation
<ul style="list-style-type: none"> <li>• Past decisions</li> <li>• Influencing factors</li> <li>• Evaluating provision</li> <li>• Concerns for future</li> <li>• Projects</li> </ul>	<ul style="list-style-type: none"> <li>• Themes from previous individual interview</li> <li>• Actions thus far</li> <li>• Concerns for future</li> <li>• Projects</li> <li>• Broad themes from previous interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Themes from previous individual interview</li> <li>• Actions thus far</li> <li>• Concerns for future</li> <li>• Projects</li> </ul>	<ul style="list-style-type: none"> <li>• Themes from previous individual interview</li> <li>• Actions thus far</li> <li>• Concerns for future</li> <li>• Projects</li> </ul>

There was also an element of evaluation of provision that sits outside of the abovementioned framework, and responds to the aim of this project. This was done through specific as well as broad questions through time. Engagement with services as well as other activities were considered. This gave a holistic view of the way in which participants engaged with the space and place around them. It included questions on service use, information, and curricular, co-curricular and extra-curricular activities. They were identified by the participants rather than being a checklist of opportunities made available to students. For subsequent interviews, participants were invited to reflect on the support provided by their university and department with suggestions for improvement.

I developed a graphical visual to represent the transitions of the individual in relation to understanding the negotiation of transitioning to career futures as a process to aid analysis. This has taken the form of a graph with an x axis to represent time, and a y-axis to represent a positive or negative relationship that the individual narrates having with employment, initially manifesting in a future job or career, depending on the participant. The relationship was 'plotted' in a third dimension to represent the extent to which this relationship with time and employment was a prominent (or

otherwise) aspect of their experience as they narrated it. Here, I must note that this is not an attempt to quantify and use positivistic ways to represent a deeply qualitative enquiry, but rather as a useful metaphor for visualisation. This project aimed to understand the process of navigation through university and onward to their career futures. Therefore, the temporal element is important, though not necessarily defining. The same goes for employment prospects, aspects of the self and any other themes. From a theoretical perspective, various aspects contribute to how an individual may interpret reality, and these aspects fade in and out based on the situation.



**Figure 9** Visual representation of analysis as a graph

In **Figure 9** I have provided an example of how this could be plotted. The example does not relate to any participant, and each participant has a different graphic for their navigation process which will be provided alongside their case study in **Chapter 6**. For the example provided, the axes have been identified, and the relationships plotted. The example below will allude to the following hypothetical situation: In Interview 1, this participant reported engagement with a range of employability prospects, and was a dominant aspect of their life at the point. The relationship was positive; however, they were nervous about the potential outcomes. This could be the case of an individual who was keen on getting a place on a graduate scheme, but it was more functional than dominating their commitment to employment. In Interview 2, the individual may have got a graduate scheme, but it may not have been their top preference. Nevertheless, they are positive and employment fades from their concerns as they became indifferent to it, or they were pre-occupied by other things.

In Interview 3, the person is preparing to or has started their graduate scheme and faces difficulties. They have a negative relationship with employment. Perhaps they are worn down by the bureaucratic aspects of the process of getting to the job. Employment has taken a larger presence in the individual life, but the size of the circle suggests that they are not indifferent yet not highly engaged with their work. In Interview 4, the individual reported enjoying their work greatly. It continues to not demand too much of the time of the individual, but nonetheless features as a positive aspect of their life.

This diagram can tell us about the changing relationship an individual may have with employment over time. The details of each point of the interview will be made clear and tailored to each individual. Furthermore, 'other' aspects that influenced the life of the individual are traced for each individual through the case stories. This offers an understanding of how various aspects could have the potential to influence individuals as they transition through their degree into their career futures.

### **5.3.2 Presenting the cases**

For the first set of interviews, the questions were kept broad to be able to explore variations in narratives, and so as to not lead participants. This attributes agential capacity to individuals, though there is the limitation that the broad theme of the research was known to participants by way of the information sheet and previous iterations during lectures. Through listening to interviews and transcribing them, themes of interest emerged for further development. These were aspects highlighted by participants that coincided with the stories of others, but were not probed into in the first interview or needed clarity or uniformity in reporting on those aspects. Admittedly, some of the themes were those I was unsure about confronting participants with. This included class and gender. Irwin (2015) highlights how lay perceptions of social location and aspects of social constraint are often understood differently to their academic use owing to the potentially confrontational way in which such questions are asked. Thus the interviews had a mix of broad conversational questions, as well as experience-sharing and evaluative questions.

Largely, I aimed to use factors of influence identified by participants themselves as themes of discussion. However, some aspects potentially escape the observation of individuals, or indeed the extent to which individuals expect these aspects to influence them. In these instances, I have carefully identified and corroborated with the literature the descriptors that directed me to themes from a sociological point of view. These additional themes are incorporated into case stories. The case stories were sent to participants to review should they be interested. This was to ensure quality and trustworthiness of the data, but also from another ethical perspective of engaging the researched with the way they are represented, to attribute agency and

dialogue between researcher and researched. I had three participants respond to their case stories, all with positive comments that it was good to see how their thoughts could be made sense of and presented in a way they felt was to their approval and also interesting for them to read. The only change requested was by one participant who was conscious of their over-use of the word 'like' and wanted the quotes to be edited to remove these when unnecessary. Accordingly, theme-identifying as part of analysis included: 1. What the participants themselves highlighted as their concerns, projects and practices in relation to navigating HE and transitioning to their futures. 2. My observations of potential contributing factors not highlighted as central but important for the telling of these stories.

In **Chapter 6** I present the eight case stories gathered as part of this research. I endeavoured to explore the ways in which young people access services and partake in various activities during their time at university that may influence their graduate prospects, including how they access such prospects, and subsequently how they transition from university, and perform in these roles.

The stories are of experiences as students transition through their final year of their degree, and to the next stage of their life, with a focus on employment and careers. These stories are narrations of pasts, presents and potential futures that the individuals construct for themselves to present to the other, i.e. myself as the listener. For this chapter, I intend to reveal the lived interpretations of reality that each young person subjectively experiences as presented to me. I attempt to story them largely through the words of the individual, maintaining the sequence of the conversations. In keeping with the framing of 'Internal Conversations' as reflexivity, through the process of identifying concerns followed by projects and practice (Archer, 2003; 2007; 2012), I have chosen to represent the individual's concerns with projects and practices in play during the 17 months of field work, with a focus on the in-depth, interview-based aspect during the latter 14 months. This is to comply with the time-frame of the study; in some instances, life trajectories had changed for the individuals a few months after the final interview, but are outside of the scope of this research. I have selected for presentation the concerns most important or particular to the individual.

The analysis was guided by the research questions. Therefore, there was a concentration on the theme of the career and getting a job, and what factors and experiences shaped or had an impact on the decision-making process regarding the same. Other aspects were highlighted if they had a consistent, considerable impact on decision-making as revealed by the participant, such as mental health and legal status. The Research Questions include:

1. *How and for what reasons do young people on a physics degree programme engage or not with employability development opportunities?*
2. *From their perspective, how do young people on a physics degree relate their degree discipline to their graduate prospects?*
3. *What influences young people's decision-making processes as they transition from their undergraduate degree in physics to their graduate career futures?*

It was interesting to find that RQ1 did not appear to be as dislocated from RQ2, revealing a sense of embeddedness of employability in the purpose of a degree which will be discussed in **Chapter 7**. The particularity of each individual's decision to undertake their chosen degree will be introduced in each story. The case stories focus mainly on the stream of analysis brought about by RQ2 and RQ3 which reveal the differences in trajectories within what is often understood through the grand category of 'graduate futures'.

The case stories are structured thus:

1. A short biography of the individual along with a brief introduction to the concerns
2. Two themes based on identified concerns traced through the interviews which included one internal and one external
3. A summary drawing together the themes, and identifying the dominant mode of reflexivity used by the individual

Through these stories I aim to convey the lived experiences of employability development, to attempt to understand how this agenda functions despite its paradoxes, and what the implications are for those subjected to it. **Table 7** is a spoiler about how each person's story materialised over time.

**Table 7 Career plans in penultimate year and transitions**

<b>Participant</b>	<b>Career plan at university End semester 1</b>	<b>Career plan at university End Semester 2</b>	<b>Activity/employment on graduating</b>	<b>Status 6 months post- graduation</b>	<b>Home and movement prior to university</b>	<b>Movement from university</b>
<b>Tony</b>	ICT – interested in BT graduate scheme, applied for teaching scheme via career module	Undecided; not looking at jobs, but plans to attend career fair in April	Got a job via friend’s father’s friend through happenchance meeting at a tea house	Working on said job – big data SME	East Anglia (Rural)	Home
<b>Isaac</b>	Arms and ammunition, robotics – Applying to graduate schemes	Got a graduate scheme offer – accepted in intended industry	6 week research placement at Yorkshire Urban university	Graduate scheme accepted before Meeting 2	North Yorkshire	Greater Manchester
<b>Alice</b>	Plan: Travel, Finance-related consultancy work, teaching	Ski season, and same as Meeting 1	Temp accounting work at local council to save up: job via mother	Ski season trip (unable to speak as a result)	East England	Home, travel, return home to work in London
<b>Jane</b>	Academia, applying for Masters	Accepted onto Masters, but unsure of uptake; thinking about physics in health sector	Temp. Summer Administration job at local pool	Temporary work at hospital; looking into health-related Masters course	South Coast	Home
<b>Ash</b>	Banking/Finance – Applying for graduate schemes, attending interviews and tests	Got a graduate scheme offer – accepted (Cyber security in finance)	Travel, move location, begin graduate scheme	Graduate scheme accepted before Meeting 2	Southern Europe; East Yorkshire (rural); West Yorkshire (urban); return to East Yorkshire (rural)	London
<b>George</b>	Academia – applying for Masters	Academia, accepted on Masters	Masters	Masters (thinking about PhD, but eventually does not do one as it does not work out)	East Midlands	Scotland
<b>Louise</b>	Finance – Applying for graduate schemes - interviewing	Did not get graduate schemes; sent CV to an accounting firm via family	Applied for jobs via recruitment agency: working at an SME	Changing jobs to a bigger company for improved growth	East London	Home
<b>Zachery</b>	Academia – Masters in Engineering, work to save up for PhD in Physics	Plan to do a summer internship	Could not do internship b/c visa. Delay in visa for Masters	Masters, applying for defence engineering & finance graduate schemes	North Africa; Persian Gulf	Greater Manchester

## Chapter 6 Findings: Case Stories – Making one’s way from a STEM degree

This chapter presents the stories of each participant separately.

### 6.1 Tony Thompson

Tony grew up in the countryside in East Anglia along with his sister, parents and paternal grandparents. His family was initially fairly poor, though Tony was quick to say that he did not grow up in poverty and highlighted that his home was in “a very affluent middle class, white area” (interview 2) and so it would not negatively impact him. Yet, his memories of just getting-by influenced his desire to not be in that state of financial need (interview 1).

For Tony, undertaking a degree and deciding on the same was closely linked to his sentiments regarding employment at the time; he did not want to decide on a career. Selecting something that is intended to be transformative for one’s life can be daunting. Tony decided that a way out was to prolong getting into work by undertaking something that would not restrict his options.

*Tony: It was something I enjoyed doing through A levels and I didn't really know what I wanted to do with my career. So I thought I'd do physics because I enjoy it and it offers a lot of opportunities. So there's plenty of career paths afterwards. I mean when I was coming around the open days a lot of the people I would be talking to would be trying to sell me on going into finance and things like that. And when you think of doing a physics degree you don't think of going into finance so it's just like there's such a broad range of things. That was the reason that I went into because I just didn't have anything I particularly wanted to do.*

*Me: Does the subject matter then?*

*Tony: Well I enjoyed it. It was something I enjoyed but... so I just thought I would do something I enjoyed, something with good career prospects. There was no goal/career in mind or anything like that.*

*Me: What made you think that you wanted to come to University? What made you decide that?*

*Tony: Well, I didn't initially. I wanted to do an apprenticeship and then I changed my mind later on, I can't actually remember why. Um... I think it was just the options thing, I didn't want to be locked into that sort of industry. [Interview 1]*

Right from the start, Tony established a relationship between doing a physics degree and work. This assertion from Tony regarding the breadth of options remained consistent with his actions as he went through his degree. This background being framed, Tony’s story will be told through two Internal Conversations –returning home for work, and thinking of flexibility in a career.

### 6.1.1 Returning home for work

Although nervous about not having a job before graduating, Tony felt a sense of security in his parents offering to accommodate him if he decided to return home. Tony was happy to have experienced city life, though was also keen to return to the countryside after he had completed his degree.

*Tony: ... Cause I'm from the countryside really so I've never spent, I've never really lived in a city, so... I don't know, it's a lot more busy there's a lot more going on. There's always somewhere you can go out and go do something and people are always going out and being busy. [...] It's interesting just having all those options available for things to do. But then it is quite... I don't know. I enjoy the quiet. I don't know if that's because I've been brought up in the countryside but I do enjoy peace and quiet which you don't get here.*

*Me: Has it had an impact on how you see things?*

*Tony: I've decided I don't want to live in a city after my degree. I'm enjoying living in it now, but I don't think I can see myself spending my life somewhere in the main city like this or at least living in the middle of it. Apart from that, I don't think so, no. [Interview 1]*

This emotional connection to geographical location can be expressed as 'emotional geography' and will be returned to in **Chapter 7**. Tony was relieved when his parents offered to accommodate him on the completion of his degree. It was only by the third interview that Tony explained the reason for this invitation.

*Tony: Well the plan is, it was on my parent's suggestion to live with them so that I don't waste money on renting accommodation when they're happy for me to stay here cause it's only a 40 minute drive with rush hour traffic, so I'm going to stay here and save up and hopefully get a deposit on a house actually with what it looks like working there, cause I'm enjoying it quite a lot, it looks like exactly the sort of thing I enjoy doing. I don't really know! [Interview 3]*

Sharing the experience of his sister who was also returning home following working elsewhere and having to pay rent, Tony felt that this was the right decision.

Regarding his degree, Tony was happy he undertook it as it helped him develop new skills that he could tailor to suit his employers. However, he did have doubts about the relevance of his grade which was reinforced by him getting offered a job prior to receiving his grades.

*Tony: There wasn't a post because it wasn't from my work that I got the job so easily. I figured that they wanted me and for some reason quite badly. It just sort of fell into place; it wasn't anything I did. But I did get it easily so I figured they wanted me as badly as I wanted the job so I was quite at ease, they made me feel at ease about that.*

*Me: Yeah.*

*Tony: I did tell you how I got the job right? About meeting in the tearoom so yeah. It was that meeting in the tearoom I think, I sent them 2 e-mails,*

*had a skype call and a phone call, and they sent me a contract, that was all. [Interview 3]*

According to Tony, this Small to Medium Enterprise (SME) where he worked as a Junior Consultant was founded and run by “hot-shots” in the technology industry within East Anglia (Interview 3). He got a good job on graduating with a good classification despite his lack of employment experience, on the conditions to not be tied down to a role, not to be in a ‘stereotypical 9-5-day job’, and to be able to return home to the country-side. However, Tony was confused by this serendipitous occurrence, and began to question the purpose of doing a degree, which will be explored in the next section of his story.

Tony was also critical of the expectations employers had of graduates, and was unconvinced of the expectations laid on universities to prepare students for jobs while at university, which was not dissimilar to his scepticism to see the need to train for a job during his degree.

*Tony: if you take a physics degree you're there to learn about physics, you're not necessarily there to become employable. I mean obviously that helps at the end of a degree if you can get a job but whether it's the university's responsibly to ensure that or not I don't really know.*

*[...]*

*Me: And what did you feel as a student when you were dealing with that whole process?*

*Tony: Well I think that there was, I think companies ask too much really, I don't think there was anything on the university side to fault, I'm thinking of the application process here, sorry, like if they were wanting like thousands and thousands, a few thousand words written per application. And it's like well how many of these do you want me to get out and how high quality do you want them to be, I'm also a student at university, it's like well, and then the expectations of them also seem quite ridiculous which shows I suppose because I did get rejected from all of the places I applied. [Interview 4]*

Despite a lack of engagement with employability development opportunities, Tony managed to get a good job which, although he felt was irrelevant to physics, does relate to the numerical skills honed through a physics degree. The hegemonic position of science in society gave him a strong sense of confidence.

*Tony: It has been in my, our lecture occasionally; it's sort of shown employment, I think it was in Physics, it's shown employment level and I've seen employment levels in other publications outside of university, so I've seen them online in newspapers and things, and it all seems like Physics is one of the top employable degrees. And I don't know. It's sort of just a general feeling that I've got. [...] Even when I was researching what university to come to, that would come up. And I'd see oh that's good employability, so even as far back as that before I was actually on the course I was seeing it. So I guess it's just been the sort of basis throughout my whole investigation into the area. And everything I've seen has given me that attitude. It's given me a bit of a big head” [interview 1]*

His experience on graduating appears to re-produce this.

*Me: Well I'll phrase it another way then, as a physics graduate you're on top of the whole employability chart so that you're the most employable. What's your experience of that, how does that feel?*

*Tony: Well it got me a job straight out of uni so that feels pretty good and it's got me a permanent contract, yeah it's, I think it's made things a lot easier than they could have been let's put it that way.*

*Me: How come?*

*Tony: Well I suppose because it's the top of the employability list, it's a well-respected degree, I mean not to blow my own trumpet too much but it's made me confident at my job which is nice, it's nice to be able to be respected at work and people know that I'm able to do stuff and aren't rolling their eyes at the graduate and making them make all the coffees.  
[Interview 4]*

Tony is content with where he currently is, although this was not the case when he was undertaking his final year of study. Arguably, the social network he had supported him through this process, enabling him to get access to a job that suited all his criteria. Nevertheless, as a young person experiencing the workplace, Tony has considered the future of his job and the potential for him to become redundant. Once again, he would rely on his experience to take him through to his next opportunity.

### **6.1.2 Flexibility in career and competing demands during a degree**

As Tony reflected on his time at university at the start of his final year, he found himself wondering whether the meticulous way in which he picked a university mattered since he had '*seen friends*' [universities] and *they all look quite nice*' so '*it would've been fine*' to pick any university (Interview 1). He also felt that in some ways he had gone around in a circle to bring him back to weighing out the differences between a degree and an apprenticeship, which he did following his A-levels. He had friends on apprenticeships '*doing very well for themselves*' (interview 2), resulting in him feeling like he made a mistake. He reported not engaging in activities to improve his 'employability', and had not looked into jobs either. Close to the end of the second semester of his final year, little had changed.

*Tony: I'm looking at a cyber security graduate position at BT. And that really interests me. But I think that's the best in the country, if not in the world, for graduates in cyber security. So that's my idea, but I'm not going to necessarily get it, I don't think. So I'm going to look around and apply to other places, but that's what I'd like to do. But I am aware that might not happen.*

*Me: Why?*

*Tony: I dunno, just competitiveness I suppose.*

*Me: So are you looking at jobs then?*

*Tony: Umm... I've looked at that one! [Interview 2]*

The competitive aspect to which Tony referred included the vast variety of additional activities other students possibly take up in order to build their CV.

Nevertheless, unlike his friends on apprenticeships, Tony was able to learn disciplinary content and also test teaching as a career option through a module during his degree. He wanted the degree to offer him something more promising to help him get his foot on the career ladder – a breadth of opportunities. The experience made him weary of teaching as a career, as his concern lay in whether his future would be flexible – what for, he never specified.

*Tony: I was considering that and I have done teaching before in a placement at the start of summer, and all of the teachers there told me not to get into teaching... Not because they don't enjoy the teaching, they said the teaching is great but they said there's too much bureaucracy and it's just not a good career to get into. So while I would like to teach, it's not something I'm going to go into out of University because again it would tie me down too much I think. [Interview 1]*

Here Tony implied that he did not want to be tied down to a certain type of job, or get into a job that would steer him onto a fixed pathway. He wanted to be able to test multiple options, though he did not engage with much beyond his degree. Nevertheless, it was not only the opinions of other teachers that Tony considered when thinking his options through. His experience supporting students in a deprived school made him aware of the difficulties faced by teachers who did not have the luxury of time which he did as a student. Although perturbed by the dire landscape of education, this story of Tony's also revealed his own capacities that he was able to test by supporting the learning of others. For this reason, Tony still felt teaching could be something he considered further along in his life. He felt similarly about potentially studying further following success on his dissertation. However, he did not seem to ponder too much on this.

For the immediate future when thinking about his career during his degree, Tony felt the strain of two competing priorities – perform well on his degree which was already underway, or look for jobs. The latter depended on the former, and so Tony could not find a reason to justify allocating more time to thinking of a job while doing his final year. In fact, it even appeared to frustrate him.

*Tony: [...] they kept on harassing me, and harassing me. They kept phoning me up, e-mailing me. I had 3 people on my back at one point. And I was like get lost, I'm trying to do a degree here! They got a bit over-bearing. And finally they e-mailed me at the end of Christmas, things had quietened down a bit, saying do you want to close this application. And I was like 'oh sod it, I'll just finish it and submit it', and I did. And that's why I got refused a few days later.*

*Me: I suppose it had more to do with the fact that you were quite busy, and it was quite intense as well.*

*Tony: Yeah. They're not going to care if I don't get my degree because I'm busy applying for jobs. I need to- my degree was just my focus at that point. I'm not going to put that aside. At worst, I'll just start a bit later if I miss this round of jobs, then that's less important than getting a good classification. [Interview 2]*

Tony expected to learn on the job as his degree would not prepare him for what he would do, potentially as he was uncertain about the exact nature of the job he would be undertaking. He did however have an idea of the sector in which he wanted to work: 'networking, IT, computing, cyber security' (Interview 1) – the same area he had considered for an apprenticeship

In an attempt to actively seek a job, during Interview 2 Tony said he planned to attend a career fair. However, within a month and a half of speaking, Tony had been offered a job based on a chance meeting of his future employer when he went home for Easter. The job was also fairly well suited for Tony who was working on a number of tasks including web security, analytics and writing software code to help analyse financial data, combining all the aspects he said he was interested in.

*Tony: they said to me on the phone before they hired me was they were looking for a blank canvas and they wanted to be able to train me up in their way so that I was- I didn't have any preconceptions I imagine. Cause I've heard lots of students coming out with computer science degrees and thinking they know it all. So I suppose it would be in their best interest for me to learn python and the machine learning and web services and things from their point of view rather than the university's point of view who doesn't know what I'm going to use it for? [Interview 3]*

By the final interview, Tony reported that he was happy he did his degree as he had gained disciplinary knowledge. He was also content with his job and the people he was employed by and looked forward to staying in the company.

*Tony: When I was doing my degree there was always some revision or some questions I knew I should be doing or this or that, and there was never- my mind was never quite clear of knowing that would work, but not I'm here, I've done my work for the day, I'm finished, that's it I can do whatever I like now.*

*Me: [Laughs]*

*Tony: Which is a nice feeling. And I am enjoying the work when I am doing it there. That's good as well. So I'm feeling quite good about it. I'm happy at home, I'm happy at work and I'm happy in my spare time so I can't think I can ask for much more. [Interview 4]*

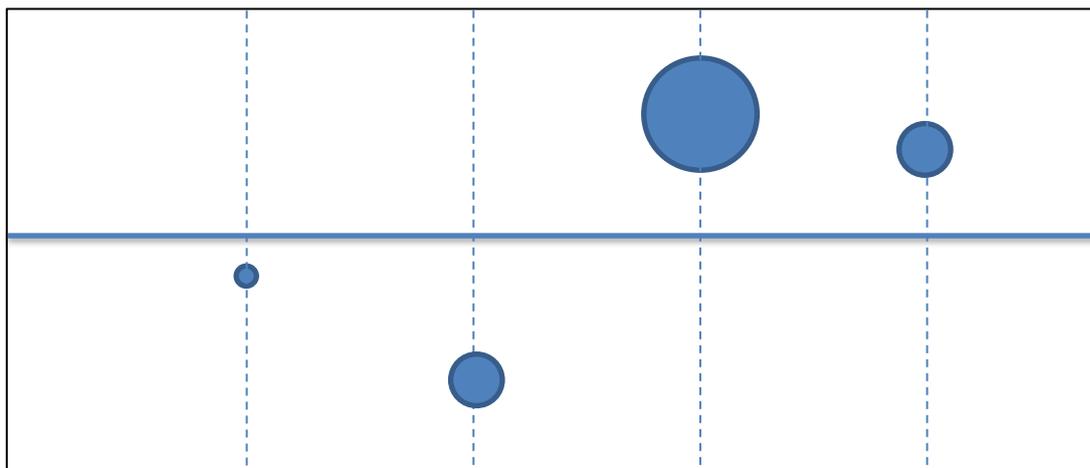
Tony appeared content with where he was when we spoke in the final interview. He had successfully found a graduate job without restricting himself to one pathway. His employment status was somewhat precarious as the company was a start-up by people who had previously sold their companies. However, this did not trouble Tony who said he would just look for something after this. He felt confident that having

work experience with such big names in the industry would be helpful. He anticipated another move in the future.

Tony's story reflects a rather traditional approach taken to university. He believed that university, although leading eventually to a job, was about learning. If he was concerned about a job, it was only because of the external pressure placed on him. Meanwhile, his primary concern was to return home which arguably offered some semblance of safety and security. Tony's determination to return to the countryside was a feature that defined his trajectory. This importance given to a certain lifestyle to which he was accustomed alongside the community-based feeling and cohesion he experienced in actually getting a job raises questions about the authenticity of the employability agenda as portraying itself as preparing people for work. If anything, Tony's honesty to stay away from the agenda owing to his own personal priorities and his conception of the degree as a learning journey rather than one of employment readiness provides a sense of authenticity. Alternatively, this perhaps enabled him to focus on a goal that was personal to him which he eventually went on to achieve. It raises questions regarding the purpose of a degree, and the extent to which the individual's perceptions of their desires for themselves, their priorities and concerns, are taken into consideration when constructing the expected trajectories of transitioning from a degree.

Beyond the period of this research fieldwork, almost one year into working for the company, Tony had decided on a new path. He left his job and joined a Christian Leadership Programme in Europe.

### 6.1.3 Summary of Tony's trajectory



**Figure 10 Tony's trajectory**

Tony's trajectory is interesting. He appears to have a strong connection with his family, though there is little of what he shared to suggest that he would discuss his future with his family. Instead, he waited for them to suggest his returning home for

him to admit to them that he did want to move. It is difficult to place Tony's mode of reflexivity firmly into one type, but it does seem to be both a meta-reflexive and an autonomous reflexive. To the extent that geography took precedence in his thoughts about work, Tony appears to make decision through a process of deliberation that goes beyond objectively looking at various options and selecting from them in a straightforward logical way. On the other hand, his rationalising such decisions appears fairly Autonomous. For example, saying he would go home after graduating was not just to return home, it was for the logical reason to not spend his money on rent. Similarly, although he felt teaching was an important career and he could have got into it easily owing to shortage in the discipline, he considered the implications of the pressure placed on staff being under-resourced which would have acted as a barrier to his options in the long run.

Simultaneous to the confusion with which Tony's story seems to be underlined, there is also a definite division he appears to make between a job as type, and a career future that can be transformed and is flexible to his needs and interests. A career is indeed malleable to an extent. A job however is fixed, and its temporary nature was something that Tony had on his mind despite being thrilled by his job. Not too long after the 'fieldwork' stage of this research, Tony had in fact left this job to move onto a more value-related trajectory.

## 6.2 Isaac

Rockets and Robots are what drove Isaac to picking a science-based degree and subsequently a career. He picked Physics because it is a broad degree, giving him a breadth of academic knowledge. He felt that he could later build on this if needed in the future. Isaac hails from the North East of England and was hesitant to categorise himself as working class, saying his family is better off now. He was more comfortable to say that he remembers where he comes from. Isaac was the first in his family to go to University.

*Me: What made you decide to go to uni?*

*Isaac: I think just cause I was clever in school. Like when I went to primary school I was very clever, I got moved up a year. Then pretty much the same in secondary. So I was just the sort of student that would go to uni do some sort of maths, science subject. College I was kind of more average. I only got ABB. Not primary and secondary when I was top of the class, but it was still enough to go to uni, so. Never really thought about doing anything else. I was the first one in my family to go to uni so that was a kind of... [Softly] 'you're clever, you should go'. [Interview 1]*

Equipped with this motivation, and the fact that all his friends were in university, Isaac made his way through university, and before graduating got himself accepted onto a graduate scheme in a defence-related company.

What makes Isaac's situation different is that his internal conversations largely were at the stage of being a project and subsequently were being practiced as needed. In terms of finding a job however, he required the external cue that he got from his degree programme as to when to begin applying for jobs. Isaac's main concern was not getting the job he wanted, which resulted in his tendency to consider tips on employability development to boost his employment chances (projects) and comply with them (practice). His other concern was whether his decision to take physics would have an impact on his interest in taking up an engineering-related career. This required him to rely on external factors more than himself, and he eventually found some ways in which he could fashion projects for his career that could become practice in the long run.

### **6.2.1 Preparing to be employable, employed, and employable again**

A main concern for Isaac was not getting onto a graduate scheme. In order to prevent this and in anticipation of his career future, Isaac engaged with a range of employability development opportunities. However, had he not paid attention in class during an employment-focused module, he would have missed out on the application process.

*Isaac: Well, obviously at the start of the year there were loads of fairs that we could go to and stuff and quite a few with employers. So I went to a lot of them to kind of get ideas more than anything; there were already a few companies that I knew that would be good to work for, but I got some more ideas. And then there was a pretty quick thing really, when you were talking to them all and they were saying applications were closing at the end of November or end of December. So after that I just started applying for loads of jobs, making a good CV, getting loads of covering letters, LinkedIn and all that, and applying for as many as I would like, as I could. And then I feel like now it's kind of just a waiting game*

[...]

*Me: Did you get help with the application? How did you find that process?*

*Isaac: I think the biggest help was the module, Professional Skills in Physics, the one that you come in on. Like, 'cause I think applying- when you're in third year you're doing so many other things you don't really think of applying for jobs, it's like a massive... I don't know you just think "Oh I'll just get around to it later in the year [...]" I didn't apply for any jobs before that assignment... But then after that assignment I was doing one every few days. Keeping it going, so I think that was probably the most helpful thing. [Interview 1]*

Isaac felt he was able to put the applications together based on the various activities he engaged with during his degree programme. In particular, his experience of working part-time during his studies gave him some insight into the work environment, and when asked about what employers may be looking for, he pondered...

*Isaac: I think one of the biggest problems graduates probably have is not having communication skills, common sense and stuff like that cause a lot of school, college university, never really being in the outside world very much, and then when it comes to working in a proper job; all we've known is exams and so you really have to kind of push that you've got soft skills that not necessarily every graduate would have. I think that's why they always tell you it's good to do extra-curricular, it's good to do volunteering, it's good to get a part-time job cause then those are the things that make you stand apart from every other person who's got 2. 1. [Interview 1]*

He seemed clear regarding what employers want by way of the attitude expected of potential employees. However, it was interesting to see that when asked what he thought of the world of work, Isaac continued to reflect on what employers want. Perhaps it is the case that employability as an agenda focuses on what employers and the market want, and thus obscures the expectations of the potential employee. In so doing, the employee is simultaneously expected to be an accomplished individual who sets themselves apart from the rest, surprising the employer, whilst still conforming to what the employer wants, maintaining predictability. Nevertheless, Isaac was confident about where he stood, even if within this somewhat constraining situation.

*Isaac: Um, I think you get encouraged about the degree, for a start. I don't know how many times I've heard the statistic of like, I've forgotten what it is. I think it's like 96% of physics grads are either working or studying 6 months from graduation. It's like the highest degree. It's the degree that has that percentage as the highest. So that's always an encouraging statistic. [...] People are always saying that physics is a good degree to get employed from. You will always find something, I think. Um, and then... I just think I've done quite a lot of stuff. Like quite a lot of extra stuff like starting [a sport society], doing part-time work, I think that's the sort of thing they say helps to get you employed. So that kind of boosts my confidence a bit, I think. [Interview 1]*

Isaac later reflected on an aspect of the previously mentioned contradiction when thinking about this relationship between university and employment.

*Isaac: Um, probably the only thing I would say is... I mean obviously doing more than your course goes without saying. That's the most important thing you should be doing at uni. But I think- and I think this is probably because there is the danger that you would just bunker down, and do really well on your course and then not do anything else, and then kind of not have enough to stand you out, to be employable. So they're always trying to get that into you that you should be doing extra stuff, but I think sometimes it comes across as so much of an emphasis on doing extra*

*stuff, like you kind of do- your actual degree part becomes a bit of a side thing. [laughs] You think, they're saying that make sure you're doing extra-curricular activities, make sure you're doing this, make sure you're doing that, make sure you might get a summer placement or volunteer or part-time work, whatever... And you're like "AAH!" And then you think about doing a lot, and then you're like, 'actually, when was the last time I did some lecture notes or...' But I don't know. That's just me. That's the general feeling. Sometimes you forget that the main reason you're in Uni is to study something. [Interview 1]*

One may begin to question these expectations to which Isaac alluded. Expectations placed on young people undertaking degrees and preparing for the graduate job landscape, and indeed to what end? Despite these conflicts, Isaac got a job offer before finishing his degree and was looking forward to work. He had been offered two – one at a small robotics company in his hometown, and one in the Greater Manchester region. He took the latter as he felt working with a big company would be beneficial to start with, and he also did not want to return home yet.

*Me: Is there anything else you're looking forward to [about work]?*

*Isaac: Um, probably just gaining professional skills as well as knowledge at the same time. Like obviously we've done a bit of professional skills here, but I think actually becoming experienced and feeling, like an employee, rather than a student or undergraduate... or recent graduate. That will be quite a good feeling. [Interview 2]*

For Isaac, preparing for the future was important, and with any opportunity that arose, he considered the potential for it to contribute to a bigger picture in the future in terms of an accumulation of skills and experience. Arguably, this is employability development. The money helps too as Isaac has working class roots – he expressed his class being better off now but always remembers where he came from. When he got the chance to undertake a summer research placement following graduation, he was happy to do so for both these reasons.

*Isaac: Um, I'm finding everything interesting. Good. I'm glad I'm doing this and not sat at home doing nothing.*

*Me: So, because you didn't just want to do nothing?*

*Isaac: Kind of that, kind of um 'cause I needed money, and also because with it being in earth sciences, it's all satellites and stuff, and I kind of wanna go towards a career in a space type industry so I thought that could help that situation as well. It's all relevant.*

*Me: How?*

*Isaac: With it being with satellites, and satellite data. I thought I knew if I wanted to do something with rockets it would have been helpful to have worked with what people put at the end of rockets type thing. So yeah, then I thought maybe it will also be a good CV booster. [Interview 3]*

With this experience, Isaac was a little more confident about working in a different, but related disciplinary industry based on his capacity to learn, which is returned to

in the next section. He eventually started his job and was happy with it. It too involved additional skills development that could contribute to his plan for the future.

*Isaac: I'm thinking as a kind of very preliminary plan because I really like the job and I feel like I'm getting trained at quite a promising rate, I feel like I'm getting a lot better a lot quicker- And I like everyone there obviously and it's interesting and it doesn't seem like it will get samey, like I feel like there's a lot of- I'm moving department in February and then I'll be moving, and you move round quite a lot. So, I think it would be a good long-term job but at the same time I don't really want to have only lived in [my hometown] or lived in [my current work location]. So, I was thinking maybe, because I'm going to try and do my chartership because they run you through an engineering chartership programme- And the scheme I'm on is like you automatically fill like a third of the requirements [...] So they reckon that takes about five years so I thought that seems like quite a good time to aim for getting that and then maybe quit and do something completely different knowing that I've got that chartership so that when I do finish whatever I've done that's different I can come back to being an engineer and have that employability as a chartered. So that's my very, very rough sketch out plan that I've made. [Interview 4]*

When asked what he planned on doing that was different, he said he would 'have that gap year that people have, but with money' and perhaps work in a different country. In this way, Isaac had formulated a plan for himself that contributed to his overall career goal; his future. Here we see that Isaac is preparing himself for a future beyond the existing 'prospect' he has accessed, an indefinite future, though one in which he simultaneously knows he will still be relevant. This can also relate to the fact that Isaac sees himself as entering a different disciplinary realm, for which he feels he needs to be prepared, to be able to grasp knowledge at a very quick pace, something that can only be found out when he starts working. Evidently, a graduate career is not the same as the graduate prospects defined by an employability agenda. The latter appears to be temporally fixed. There is also an element of geographical location that is relevant to his decision and, as shall be considered in **Chapter 7**, was also relevant to other participants.

The importance of this chartership and the validation it brings is closely related to another concern that Isaac had during his transition: that of having a physics degree and pursuing an engineering-based career.

### **6.2.2 Can a physicist be an engineer?**

The concerns Isaac had ran parallel to each other; one focused on constantly thinking of a future which is abstract, and the other as a more practical aspect about getting a job in an industry he desired. As it has already been established that Isaac got the job he wanted, there can be no mystery to this section of his story, but it is worth bearing in mind that reflexive deliberations are multi-pronged.

Isaac chose to do a degree in physics because of its academic nature, but wanted to do an engineering-based job. He had his reasons.

*Isaac: I wanted to be an Engineer, but I didn't want to do Engineering because I thought Physics was a much more academic subject, like it would give me a bigger breadth of knowledge. And I feel like an Engineering course- when I was looking at the sort of stuff they do it's very... it's almost like the sort of stuff you would be doing in the job of engineering. [...] So, I thought at university if I do all the base learning and then there is a good chance I would be able to get a physics degree and move into some sort of scheme where I can learn all the skills I'd need to be an engineer anyway. So, I thought I'd end up knowing more than if I did an engineering degree and then went into straight engineering, so... might have taken a little bit of a chance there. Been applying for engineering jobs... And I think it's going alright*

*Me: How have you found that (out)?*

*Isaac: When I was talking to most employers at graduate fairs, they've all said what I assumed was true which was like we do hire physicists they provide a new, a fresh perspective or whatever, it's easier to train them up because they know all the maths and the science, they just need the technical skill. So, they've been pretty encouraging and I've applied to a few jobs. [Interview 1]*

This ties in with Isaac's tendency to pay close attention to what employers say they want from employees and helped him feel confident about his decision to undertake his degree in physics. However, it was also a process of self-discovery through his learning that helped solidify his interests, particularly through his dissertation.

*Isaac: I think that was probably one of the main driving forces behind the realising what I wanted to do and actually getting the job. Like I took a- it was a robot that we made, and I took it to the interview cause there we had to do a presentation basically something very similar to what the robot does; things about autonomous vehicles and things like that so I thought I'd take the robot and do a little demonstration and they loved it. So I think that was helpful. [Interview 2]*

This realisation that he could potentially take an engineering job was important; Isaac did not see himself as a physicist per se. He was more inclined to describe himself as an engineer, albeit recognising that he has a degree in physics. Of the relationship, he seemed to explain the degree as twofold – knowledge being a toolkit and knowing how to use the toolkit.

*Isaac: Um, obviously other than the base fact that you know physics from the degree I would say one of the things is that ability to do something that's not necessarily physics, that is quite important. I think that is one of the main things that people say about doing a physics degree before you do it is that you can go into so many different sectors. I think the fact that I've been able to get an electronic engineering role, potentially over someone who has done an electronic engineering degree, is one of the hallmarks of being a physicist. I dunno maybe I could have gone into accounting or computing, or even law or something like that with a physics degree. I think it's one of the important things [Interview 2]*

Perhaps it is the confidence of having a degree in physics with its breadth of options that enables Isaac to stay positive about his future ability to cope with a job that his degree did not explicitly train him for. He reiterated that it did concern him, but was reassured by talking to graduates who started the scheme before he would.

Yet this concern resurfaced not too long before he could begin the job, though it was combined with excitement at the prospects of learning something new and starting work.

*Me: So in terms of thinking of your job, what might you be looking for in that, how do you think that might go?*

*Isaac: Um... I don't know actually. With it being a bit of a different like industry to what I've- so obviously it's not a lot of straight physics, so it's electronic and mechanical engineering which I don't know that much about, so I am kind of, I am going in quite [Inaudible - unaware] as to what I actually would be doing. [...] when you're doing your degree it's always like you do a module and then you have to do revising for the next module and then you forget about it, you don't really become an expert in any particular field, you just have to do lots and lots and lots of things, so I think it will be nice to finally be able to specialise in something that I can do every day and become really, really familiar with it and be good at it and feel comfortable with that skill so I think I am looking forward to that the most. [Interview 3]*

When he started working, as expected, Isaac found the 'learning curve's so steep' (Interview 4), but he was given the space and time to learn and ask questions – the latter of which was a skill he developed when working part-time in a pub during his studies. When asked how he was coping, Isaac felt he was doing more than fine, and was learning new skills.

*Isaac: Pretty well I think, like there's no real direct transfer of stuff that I've learned in physics yet that I'm using in engineering per se but obviously there's maths and the maths I'm good at and then there's like problem solving type skills. And I feel like the best thing is that I've learned how to learn almost so when I do have to learn something new, I'm like ah well I had to revise this topic in uni I did it like this and such and such. And I feel like I'm learning stuff quicker than I would have if I'd not been to uni.*

*Me: Okay and what about interpersonal skills, did you say that you needed to suddenly develop them and you didn't have to do them in uni?*

*Isaac: No I suppose you do need them at uni but like the more professional side of like communicating with colleagues and communicating with external companies and that sort of thing and you have to have a professional demeanour and you have to be able to like negotiate, you know like you need a lot of tact to do that sort of stuff. At first it was a lot like well I feel a bit silly asking for things and that sort of stuff but you learn to- you get a bit more self-confidence, be like what I'm doing is important, listen to me. But I'm not really very good at that yet but I'm getting there. [Interview 4]*

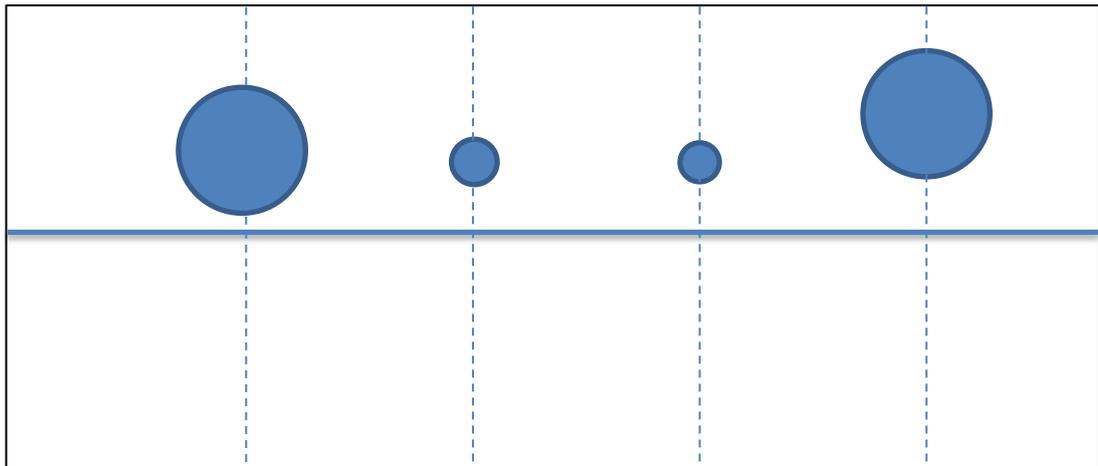
On reflection, he felt it was probably much ado about nothing. Still, he had considered the possibility of it being a concern, particularly as '*you kind of sell yourself when you're applying for the job, like I say I know I've done physics but it's okay I'll be a really good engineer, but having never been an engineer you don't actually know if that's true*' (Interview 4). He prepared for this by anticipating the need to learn a new discipline supported by putting his existing knowledge to use. He was also very motivated to do well in his work as he felt he took pride in it. What was important then was the chartership licensing which became an important artefact to Isaac, as it gave him the confidence to affirm his identity as an engineer.

*Isaac: I suppose it would just be a, what's the word, confirmation, it would be a confirmation that I've achieved my goal of becoming an engineer rather than being a physicist. Because yeah so like after I'd finished my physics degree I wanted to be an engineer and I've been hired now as an engineer. But I'm obviously not a competent engineer yet because I've just started on a graduate scheme but then when I've finished the scheme I might not necessarily be and then it will just be at some point in my career as an engineer I'll be like a good engineer. And I suppose going through the whole chartership process means there'll be like a defined time, when that happens then I'll know for certain I am now an engineer rather than kind of playing it by ear I suppose. [Interview 4].*

As it turned out, in the end it did matter what a certification said about his capacities. It worked both ways – for the potential employer and for Isaac himself – serving as something that would give him confidence.

Isaac is an ideal instance of a student responding to the STEM skills gap while also engaging with employability in numerous ways. Isaac prepared for his job by engaging with various activities that could support him in his applications. He participated in a students' society, selected modules that could prove his capacity to work and work in teams, worked part-time, and engaged with anything else that came his way and interested him. For Isaac, the need to gather skills and experiences in preparation for the future was to subsequently support him in achieving a disciplinary switch. Here, the employability agenda is made to interact with notions of disciplinary boundaries, in their artificiality. Isaac was conflicted as to whether to be positive or negative about the situations in which he found himself, settling with being positive about a challenging situation. This is what makes Isaac the ideal STEM graduate in terms of responding to a skills gap, as well as following the prescribed route of employability development. Isaac is happy with where he is, and is already considering his next steps.

### 6.2.3 Summary of Isaac's trajectory



**Figure 11 Isaac's trajectory**

When I first met Isaac, he was highly engaged with thinking about his career future, actively applying to opportunities and had a positive relationship with the process. He did so because he had just found out that the application deadlines were soon approaching. He seems to be an Autonomous Reflexive. He did not speak to others to help him decide. Instead, he found relevant information to suit his objective. It continued to be the same at the next point, though he had secured a graduate scheme and was relaxed about this. Following this was a lull before he began his job, though he had another job for the moment. It was here that we are given a slight hint of Isaac's fear, or what was classified as 'Imposter Syndrome' through the questionnaires. Being employed in engineering, a profession in which the UK lacks qualified people, Isaac responded directly to the STEM skills gap. However, what appears on the surface to be a straightforward case of undertaking a STEM job is actually a result of scrupulous decision-making alongside instances of concern. In the last interview, it appeared that Isaac was enthusiastic about his role. He put in the necessary effort to learn things that were new to him. However, we also see this coupled with Isaac thinking of the future in a different way to how he spoke about finding a job. Thinking of the future, in his last interview, he exhibited the character of a meta-reflexive as he incorporated personal fulfilment in his decision-making and seemed to have a more definite plan for the future. Being at university may have given him the tools through which to prepare for a future career, but a notion of what he wanted this future to look like emerged later.

## 6.3 Alice

Alice is from South East England, and lives 'just outside London'. Her love for physics related to the encouragement she received from a teacher previously who made her love the mathematical aspect of it, alongside her dislike for writing essays.

*Alice: I was thinking like essay subjects, I think like, I just can't, I can't really do that, it's not really my forte. Whereas Maths has always been my forte. But Physics is more like applied Maths, its more interesting. It covers such a wide range of things that I thought that would be more fun, you've got the lab aspect, the computer aspect. Um, it'd be more engaging, and having good influence by the teachers around me was probably the reason and just counting out all the essay subjects doesn't leave me with many others. Apart from the sciences and biology and chemistry, just didn't sit as quite well with me as Physics. [Interview 1]*

Going to university was a norm amongst Alice's social network. She had a middle class upbringing, and had been to a private school. At school, they were encouraged to apply to university through various information-delivery events. This paved the way to her having a better idea of university. Alice's process of transitioning was through repeated reflection. She explained her decisions of going to university and plans after graduation as fulfilling personal motivations in relation to a job and her personal life. Following from this, Alice's concerns related to establishing a balance between her own expectations from life and keeping those around her happy as familial and social expectations also weighed heavily on how Alice constructed her thoughts about her future.

### 6.3.1 The University experience as personally formative

The decision to go to university for Alice was done through deliberating between taking a job straight from her A-levels or going to university. She spoke to her father about this following from work experience she had done with her father's friend.

*Alice: [...] Me and my dad spoke about it, and I was like I want to go to university because you not only learn, get a degree there, but you also grow as a person living away from home. You experience more, and if I saw all my friends go to university and I hadn't I would have wanted to do it, and also the job prospects as well and I knew that even, not only am I getting the good experience, at the end of that I'm probably gonna get at the same kind of wage as if I had just worked my way up; I'd go into it at the same wage that- I know I've got a debt - but with experience and fun as well kind of combined, if that makes sense? [Interview 1]*

This sums up Alice's motivation through her degree. It seems that Alice decided on going to university first as an experience she wanted to have, and then thought about the degree discipline. Rather than perhaps thinking of getting a job, or wanting to study, or it being assumed that she would study, she saw going to university as a combination of personal and professional development, and it felt that the former was on equal standing as the latter if not more. In a way, university seemed like a space

of incubation, a formative time. It gave her a social life opportunity, something that if she didn't have she would have missed in the future. Alice wanted to have a life experience and saw going to university as a way to do this. The degree discipline itself was something she enjoyed in school and worked to her strengths which is why she decided to study it.

Alice's thoughts about her future had been further impacted on by her experience of a Study year abroad. That was the 'moment' that influenced her thoughts about her future.

*Alice: I think having a year abroad was quite influential. It gave me time to reflect. [...] I used to get really stressed obviously 'cause I said I did a lot of my work at home so my mum would like see me when I was really stressed. She was like you just have to [go on the year abroad]. It was a pass-fail year so at the end of the day if I didn't even pass, it was fine. So out there I just enjoyed myself, I relaxed, but I did also try to keep going with my work as well. And I found the library. [...] my friends [from the Year Abroad], they'd go to the library so I went with them and it was a more gentle introduction into working steadily and relaxing and just... just realising that if you work steadily that you can relax more. [...] and it kind of gave me a year out to travel, see so much of the world, and experience so much, meet people from all different cultures, then I came back here, it was like a fresh leaf. [Interview 1]*

This experience built further on Alice's initial thoughts about university as formative in terms of personal fulfilment and development. It enabled her to take time out for herself which directly impacted her studies. Evidently, Alice sees the two as going hand-in hand. Not as a trade off, but as separate entities that influence each other. It wasn't like mixing two liquids in different proportions. It was like selecting two solids that would not necessarily infuse, similar to building blocks. Alice's experience was fruitful because her year abroad relieved her from the stress she had in previous years of study. Alice not only had the opportunity to relax, but also developed a new mode of learning. Alice divided work and education, viewing the year abroad as different from one in Industry. The 'study' aspect of degree-provision was more important to her than employability-boosting activities.

*Alice: I definitely didn't want to do the Industrial placement! [...] I'm going to have a job for the rest of my life. Ok, it may open up a few opportunities, but if I get a good class degree from a good university, doing physics as a girl, and I can present myself well in interviews, then I don't think that experience would have- it would've done the same for my job prospects [as getting good grades]. But for me as a person, I don't think I would have enjoyed it. [Interview 1]*

Returning from the Year Abroad, Alice found herself with a smaller social network since all her friends had graduated, none of them took a year out. However, Alice used this positively as these things when combined enabled her to focus on her work, and was also a coping mechanism for her social anxiety.

*Me: You were saying you used social spaces more before - was it difficult to get back from the study abroad?*

*Alice: Yeah it was quite difficult cause I didn't have a lot of course mates beforehand, in my first year, but I did have a small group and we would go together and I would sit with them. Cause I do get quite bad anxiety about going to things and stuff, just being in social spaces in general. [...] I would just seclude myself; everyone was already in their groups and partly why I didn't feel comfortable talking. [...] I found it very difficult and, in that sense, avoided social interaction; I would just get to the lectures, sit on my own, focus on my lecture stuff. [Interview 2]*

Evaluating her experience towards the end of her programme, Alice felt that undertaking a degree had indeed turned out as positive personal development. On reflecting on whether she would call herself a physicist during an interview at the end of her final semester, prior to exams, Alice explained...

*I've put so much work and effort into everything I've done for physics and it's been a struggle and it's been very difficult and there's been some really difficult times so I wouldn't- although it's just a piece of paper at the end of the day which is on your CV, I think it's more than that. There's so much effort into it I'd like to think that deep down that is part of me, that physics part of me, these 4 years that I've dedicated to studying it is always going to be with me even if I'm not practicing physics with straight honours [Interview 2]*

However, this was one side of the coin, as Alice later expressed the anxiety and stress she had experienced having done poorly in an exam.

*Alice: That was a bad time, so I thought with physics just the way physics is, you either have a question that's right or wrong. And I think the way that it's taught sometimes isn't encouraged - so this comes back to my dissertation the way things are taught - it's not encouraged for you to think outside the box. And adapt your knowledge accordingly to different sets of questions, because they seem to provide quite repetitive ways of answering questions and it's normally like the same method and you can get stuck into a rut, like I managed to get into that, and I understood what I knew from this exam that went badly, but I didn't understand how to adapt what I knew when I had already crammed so much into my brain, and I just found that exam it was just, it was awful, afterwards I was sort-of and it was the one I thought I was going to do the best in, I understood so much, I honestly did understand it, and I just, it just went so badly, I was just thrown off, and the feeling after it was so awful, I actually felt the lowest, stuff like that gets so low when you've tried so hard for it, and it was just really disappointing and I just think right then and there I went with a friend into town, I was like I just give up, it was my first exam, so obviously that is never good when you still obviously have to get up on your feet and do 2 more just as difficult which is what I find even more difficult, but I did best in the one I thought I would do worst and obviously the other way around. [...] I think physicists are really, really stretched in that sense that you have 100% exam, it's really difficult content, and then you throw a curve ball in there and in a way, it makes you kind resent it in a sense and I don't see any other of any other subjects come out of their exam and think they've completely failed it. [Interview 2]*

Alice came out the other side eventually, with a First-class degree. However, she had to evidently go through an emotionally challenging point before getting to where she did. Taking the year off was perhaps more than just a desire to explore and travel, but an opportunity to give herself a break from the stressful degree, before jumping into the next stressful time of her life. This break was to restore her mental wellbeing. As she reflected on her grades, it seemed like she felt underwhelmed.

*Me: So on reflection, do you think the grades matter?*

*Alice: I don't think there's much- like from a naive point of view I don't really know if they matter or not in the sense that I don't know what an employer would think. I know people that have said things around 'oh if you get a first you'll get a good job', there's other people that go 'oh some employers don't actually care if you get a first, and if you get a first sometimes you're worse off than a 2:1 because it looks like-' I don't know they said it looks like you're maybe too focused on your work and maybe you don't have any other extra-curricular activities. [Interview 3]*

The uncertainty that lay ahead was both a good and bad thing. Alice was taking some time off from the hectic schedule that characterised her degree life, something she realised as having a positive effect on her personally. She did however want to get into the other next stressful thing – a job in London. Here too however it was an attempt to build up experiences, come what may.

*Alice: [...] right now in the job I'm currently in, I don't think it made much of a difference. Um, but for future jobs when I start applying, I guess for grad schemes. I haven't completely decided what I want to do, I know it's soon, but I really need to start thinking about travel instead of going into anything, and I really want to be able to enjoy my work. That is one thing about my work right now is that I don't particularly enjoy it, so it's made me realise that I really need to think about a career because I don't want to be stuck in a 9-5 and just wishing it away to the weekends [Interview 3]*

This link between a degree and work therefore can often be artificial. What is found from Alice's story is that the university experience as a process is what enables the individual to transition to their future. Engagement with opportunities that are provided through the degree can assist this process.

### **6.3.2 A balancing act: work, social groups, self**

In the first interview, Alice had a general plan in place for her future. Below are the projects she laid out for herself along with the concerns about and justifications for the same when we first spoke. These relate to a sense of 'experiencing' the world and 'becoming' in a developmental, progressive sense, rather than just transitioning as a check-boxing activity, or a race. There were some priorities for Alice regarding needing to find enjoyment in her work that were consistent throughout her narrative. She began by narrating her long-term plan.

Figure 12 Alice's future plan

<b>Long-Term (10 yrs+)</b>	<b>Teaching Physics in School</b>
<ul style="list-style-type: none"><li>• <i>"Looking further into the future maybe it would be better to maybe do teaching when I've had kids or something cause of":</i></li><li>• 1. Good holidays: Doing Year Abroad makes her want to continue to travel</li><li>• 2. Giving back to the community: <i>"In physics, I think it's good to have a teacher that is relatable, especially a girl. I didn't have any girl physics teachers in school. I think I'd find a lot of satisfaction and fulfilment in being a teacher"</i></li><li>• 3. Balanced life with time to care for children</li></ul>	
<b>Short-term (2 yrs+)</b>	<b>Work in London</b>
<ul style="list-style-type: none"><li>• <i>"I also do live just outside London, and I know a lot of people who work in London [...] who have gone straight into work now."</i></li><li>• 1. For the experience: <i>"being able to get a good job, in that way of life you learn a lot"</i></li><li>• 2. To have money to start off: Currently relies on the student loan and parents, but wants to be able to buy things for herself and others too which she cannot do as a student.</li><li>• 3. Social network influence: <i>"[my friends] are enjoying the atmosphere, and my cousin and stuff is working there, and they love it, and I got here and it does seem like quite a thrill"</i></li><li>• BUT.. <i>"I also know that working in London is a bit cut-throat, my dad explained it to me [...] so I wouldn't want to be subject to that for too long. Maybe just experience it and duck if I didn't like it."</i></li></ul>	
<b>Post-graduation (1 yr)</b>	<b>Temporary job and travelling</b>
<ul style="list-style-type: none"><li>• <i>Initially after university I think I'm going to have a year out before I get into work, and I want to do a ski season in Canada or whatever and travel a bit more. [...] So I'll get a job and hopefully that will mean that I can save up some money, and save up the whole of next summer and then go travelling"</i></li><li>• 1. Job as permanent: <i>"once you start working your way up the hierarchy it is more difficult to get out and who knows I might get sucked into it and it might be my job for 10 years or whatever"</i></li><li>• 2. Desire to travel: <i>"I'd like to have a year out and see a bit more of the world before I get into the workforce"</i> as this may be curtailed by starting to work.</li><li>• Influenced by brother (Interview 2)</li></ul>	

It is important to understand how Alice's projects eventually played out in practice (The plan is presented in **Figure 12**). In particular, the negotiating process for the initial plan (post-graduation) played out during the course of the three meetings with Alice. The second time I met Alice, she stated that she *'initially did start applying for grad jobs until they started taking up too much of my time'* (Interview 2). This reflected what she learnt from her peers previously.

*Alice: ...getting into work is a very stressful process. I've witnessed a lot of my friends going through the graduation scheme process and I've seen them stressed, I've seen them rejected so many times, and it is very, very soul-destroying, and you start to doubt yourself. And they put a lot of time into applying for their grad jobs, because they want to go into a grad job from university, and it comes at a time when all their university work's*

*coming in, [...] and they take 5-6 hours when you want to do them well, and everyone wants to do them well. [Interview 1]*

Given the timeline of her plans, these applications and jobs potentially did not matter for the moment. She did however consider potential changes to her daily routine when transitioning from a degree to work.

*Alice: I think it's really difficult transitioning from having a few hours a week - say close to 20 hours a week, first, second and third year, on average, hours a week, and then being able to sleep in and go out on a school night. I think that's going to be a hard transition, waking up early. I think that's going to be really difficult when it comes to it. But I think also you're very much influenced by the people around you, so when you're at work, all of your friends will be getting on to the train together or whatever, I think that would maybe soften the transition a little bit. That's probably the routine situation that's probably going to change. It's also probably the money situation that's going to change. And... Yeah, your personal life and how I feel about it I think that's quite up in the air. I think it's quite important to choose a good job so you're still content within yourself and you're not having negative influences that are bringing you down in your home life as well. I think that's quite important, those 3 things [interview 1]*

Alice's idea remained constant but it is evident that she incorporated the reviews of others when thinking of her projects.

*Alice: I would quite like to have a 9-5 and live the London life and get a taste of it before I start applying for grad schemes so that I could start in the following year. So at the moment I've looked into maybe just doing recruitment 'cause I've had a lot of like come and go aspects so they've got a high turnover of staff so they always need staff so they're quite keen. [...] I've spoken to a lot of people, they've kind of had it like an in-between job. So I thought about doing that over the summer until I get my ski season so it'll be able to fund me for that. [...] So that's my plan. But who knows what will happen. [Interview 2]*

On graduating, Alice continued to work towards this trajectory. She got herself a job at the local council where her mother worked, and split her time between being a legal intern and helping her mother in the accounts department. She did this to be able to fund her travel following the ski season. However, the transition from university to work was abrupt, and made Alice consider that "if I do want to do these things that I dream about then I do need to work hard and that's only me thinking about the next coming year." The process of finding the job itself was difficult, as expected, and Alice used her social network to get a job on graduating.

*Alice: It was a big pressure to get a job. And jobs are quite difficult, but I had to call on contacts and things, so like my mum spoke to few friends and colleagues at work to see if they had any vacancies preferably temporary, because obviously I'm planning to go travelling and I could only take a temporary position and living on the outskirts of London, demand is so high for every single job front, literally every single job, so that was pressure and I was a bit worried about not getting anything and*

*I know friends that still haven't got anything and they've been graduated like 2 months now.. [Interview 3]*

Here, we can see the slight shift in concerns. First, Alice thought about changes in routine, after which the predicament of getting a job arose, but only in theory. Finally, she experienced the difficulties in getting a job after graduating. Here, I want to stress that Alice was not looking for a graduate-level job, and she still found it difficult to get one without tapping into personal social networks. Slowly, she became uncertain of what the future held for her, comparing herself to others that took more straightforward paths.

*Me: Is there anything else you'd like to tell me about work, how you feel about graduating, your degree, your future?*

*Alice: Umm... Yeah I'm quite unsure about my future and I don't know where- how it's going to - it's quite scary cause always- like some people know what career they want to enter and I'm envious of that; they know they're passionate about it, and they know it from the beginning and cause I think I'm going after [something uncertain], I think it's quite a scary thought. Knowing that the decisions I make in the next couple of months is gonna affect my whole, entire future. Whatever grad schemes I apply for and things like that and it really is going to affect my- the rest of my life; it is a lot of pressure on people our age, and I don't think, like, I wasn't really expecting that but I just want to make the right one, and make the one that's best for me. But like at the moment, I can't even- I literally don't know where it's going to go so... it's a weird thought and I guess I try and avoid it. [Interview 3]*

This arguably reflects wider concerns and scepticism about how to manage life under late modernity as neoliberalism, globalisation and rapid technological advances converge. Does one give into one's personal desires for fulfilling life-experiences, or does one trade it for a sense of security through a certain job-pathway? Does one undertake an Autonomous mode of Reflexive decision-making, or is it okay to think Meta-reflexively? This is not the only aspect taken into consideration. Through Alice's story we find that as she attempts to navigate her time through university and to her career future, she also aims to satisfy parental expectations. A cross-generational care translates into a conflict of sorts regarding perceptions of transitioning to work, but has no solution in this case. She sought validation from her parents before as she thought about the investment they made in her education seeing as, *'we're in a world now where having a degree does set you aside a bit more than people that don't and there's so much competition for jobs so I think having a degree is important, that was the view of all my friend's parents'* (Interview 2). However, the conflict did continue until the end.

*Alice: I know my parents probably want me to go on to do certain things, maybe like into... um... finance and grad jobs and stuff, but I need to know that this is my decision, this is the rest of my life and I just need to make sure that- and like they would completely support me in whatever I want to do, but I think there is also a bit of pressure. uh, yeah. [Interview 3]*

Alice's experience sheds light on the simultaneous need to consider the accounts of peers within the same generation, their family, and their own desire to make decisions that suit their personalities. The expectations and experiences of others too are intertwined with contextual, subjective experiences and interpretations of reality that eventually impact on action. Therefore, conflicts are inherent to the decision-making of individuals under the present context, making the development of employability paradoxical in that the onus is on the individual whilst simultaneously being prescribed externally from a different generation, be it family, employers or university. The current context is transformed by technological advances, globalisation and neoliberalism – all of which are entrenched in Alice's experience. Alice explains that one of the causes of the frustration she felt was social media.

*Alice: Talking about social stuff, an interesting topic is the fact that things like social media in respect to this, we live in a world which is so, every, all people my age are addicted in a sense to social media, so I remember when I first came to uni, things like Facebook tagged photos and things like that people were picking up on and the things is now, what it's changing into now, I mean first it was oh how many friends you've got, who were your new friends, people were getting jealous about certain things, um and sometimes I do think that social media does create an environment where people aren't happy for their friends. [Interview 2]*

Unbeknownst to Alice, this uncertainty about the future is echoed by participants who did undertake straightforward paths, and this conflict is not always resolved in the most straightforward manner. The precarity of everyday lives does not only stem from fixed-term, zero-hour contracts, but also from feeling a sense of needing to aspire to more, and meet expectations whilst considering the financial implications of any act. Alice hints at how this might result in a mentally unhealthy population, one which she articulates as well-known amongst her generation.

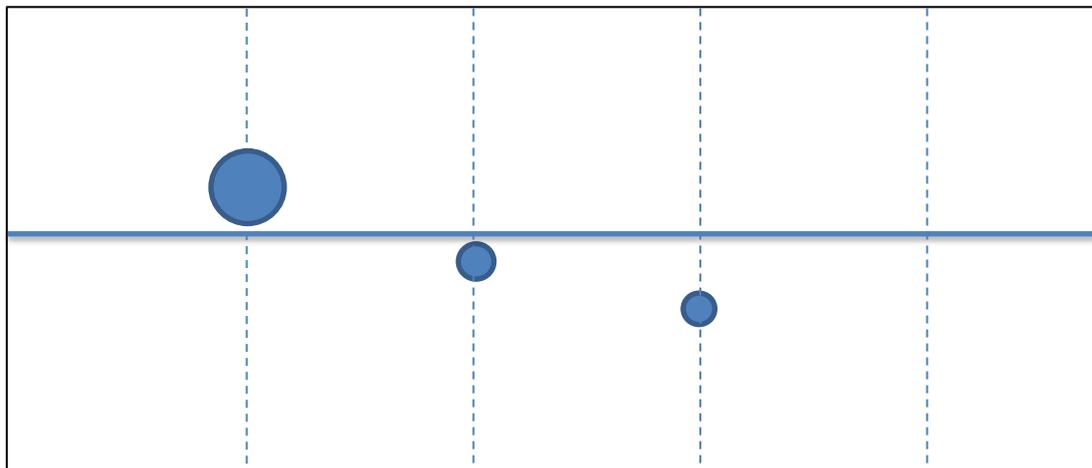
*Alice: But in our society today, young people are so encouraged to talk about [mental health] and to think about it that like, but at the same time I think a lot of people feel it a lot more because that is the case. But um... I do think it is important to enjoy your work and like I said at the moment I don't particularly enjoy, enjoy it. [...] if I was in this situation and it was a permanent job, I would know in my head that I would have to get out of that because I wouldn't be able to withstand it in the long-term. Mentally-cause if you're not enjoying it, side effects of that is... I dunno getting upset, depressed, whatever. [Interview 3]*

Alice's story gives us an alternate route from a degree, one that is attempting to make sense of how to balance personal desires, priorities and the expectations of those around them. Succumbing to pressures externally can fix a problem temporarily – as Alice would always say yes to invitations to socialise so as to not seem rude. This can also be done by combining it with personal desires – such as Alice going on a ski season, like her brother, which made her parents more comfortable with her decision. In the end, combining them all is difficult and to Alice sometimes felt like

indecisiveness. However, it is this very indecisiveness that necessitates and is supported by individual reflexivity.

Alice's story presents us with the conflict of a personally fulfilling life and the expectations placed on young people regarding what this should be. In order to balance this, Alice attempts to create a Utopic vision alongside an evaluation of reality in objective terms, true to her disciplinary training in the natural sciences. Thus, her decisions for her life may be somewhat disjointed, but they respond to varying internal conversations she is forced to have regarding her experience of life under Late Modernity. Herein lies the everyday reflexivity that young people are forced to incorporate in their everyday lives. Given the privileged position of belonging to a First World country, Alice is able to begin to attempt to gather as many 'experiences' of life to eventually influence her interpretation of reality.

### 6.3.3 Summary of Alice's trajectory



**Figure 13 Alice's trajectory**

When I first met Alice, she was confident about her plans for the future and had considered her career trajectory seriously. She knew that she wanted to travel, and was influenced by her previous experience of the year abroad. Alice seemed to be a Meta-reflexive regarding her decision-making here. This wavered slightly at the next point as she began to confront an imbalance in her personal desires and the expectations of those around her. Her thoughts began to take on a communicative mode that clashed with her meta-reflexive mode. She was influenced by both these aspects equally it would seem. The last time I spoke to Alice, she had done well in her degree, and had undertaken a temporary job. She was not very excited about this role and was looking forward to traveling, which is what preoccupied her time rather than thoughts about employment and a career. Here, Alice maintained her meta-reflexive approach. I was not able to get in touch with Alice for the final follow up as she never had sufficiently good reception for a call. She was in the mountains

on her ski season, and this was where she wanted to be. Overall, it appears that Alice's mode of Internal Conversation is meta-reflexive alongside a communicative mode. It was interesting that she had a very close relationship with her brother. Although she may have come up against her parents' desires for her, her decisions reflected an attempt to balance following what her brother did which made him happy, and making sure her parents were happy too. Although she does go through her Internal Conversations by discussing them with others, the underlying reason for doing so seems to contribute to a meta-reflexive mode. That is, she incorporates the evaluations of others, by considering these views in relation to what she wants in life. This is influenced by a desire for experiences that will contribute to who she wants to be as a person in society.

## 6.4 Jane

Jane is from the Southern coast of England. She was raised there with her two elder sisters by their parents. She is very close to her family. Jane picked physics because although she initially hated the discipline during school, she took a shine to it in college. However, the seeds of interest in science had been sown earlier than that.

*Jane: It's so crazy. This is what I think about science: one way I think of it is like when I was a kid, I used to be really into fantasy books, like Eragon and- have you heard of that?*

*Me: Yeah! Yeah! I probably know a lot of those- [both laughing]*

*Jane: You're a fantasy nerd as well? And I used to think if I lived in a world like that I'd study magic, and I'd become this really powerful wizard or something. And I don't know, one day it kind of just clicked for me. And I thought 'but we have that in our world. We have science.' And that's basically magic, like you can predict the future. And you can do amazing things. I don't just compare it to magic, it really feels like, I dunno. It sounds a bit crazy to me. [Interview 1]*

Jane was excited by science, and recounted playing with magnets and a pH-testing kit as a child. She was also encouraged to take it up by her father who is an engineer. Jane was excited about preparing for and going to university. She over-estimated the results she got during application, but nevertheless achieved three As. During her first year at university, she attempted to make the most of the opportunities she was told she would have by going away to university. However, Jane was soon overcome by difficulties and suffered depression. It was not until the end of her second year that she realised what she was going through and sought help. Starting her final year, she was still excited about her discipline, but had a sobering approach to university life. Jane eventually graduated with a 2.2, moved home, and took up a summer job at her local indoor pool, and subsequently worked in a local hospital to test her

interest in the medical profession. When I last spoke to her, Jane had planned to do a Masters in Physics on a part time basis, which would enable her to have a personal life as well as do her studies at a pace appropriate for her.

Jane's concerns revolved around balancing two priorities: mental wellbeing and closeness to family, and satisfaction with choice of a career. The two are inter-related, though the former has a focus on the micro, while the latter relates to macro social life. This case study is unique, but sadly potentially more common than is acknowledged.

#### **6.4.1 Mental wellbeing, and the close-knit family**

Jane was excited about the prospects of starting university. She entered confident, and a high achiever. When she started, she seemed to initially enjoy the environment, but soon things took a turn for the worse.

*Jane: Yeah, um. First Year was... yeah it was ok like I think I just had trouble getting into university life if you know, like student life, cause I'm not very good at drinking. I don't really like drinking. [laugh]*

*Me: Could you tell me more about that, cause that's something that doesn't get spoken about, like "oh university life", but what does that mean? And some people don't kinda fit into it.*

*Jane: Yeah, I dunno I mean everyone just assumes that that's like what you do as a student so when I first came to university I was like "Yeah I'm gonna make like a tonne of friends and go partying all the time" like have an amazing time have loads of stories to tell and stuff. And like when you come home for the holidays and your parents' friends and stuff, they're like "oh do you have any funny stories". And I was like "no, I've just been like in my room!"*

*Me: Aww.*

*Jane: But like yeah, that's just because I was quite shy and I've got a boyfriend and stuff so that like- I just didn't go out that much really. Which was my own fault. But yeah then eventually I came to terms with it and was like "do I actually want to be doing that?", cause I did it a few times and it always ended badly. [laughter] and I kinda thought "it seems like a waste of time to me" and it just makes me feel a bit shit really, the next day and stuff. Yeah, so eventually I kinda decided that I don't care if I don't live that way, like I've got other things that I enjoy. Um, in second year I just like suffered from depression a little bit, and that affected my study and I got, not like terrible grades but like First Year I got high first, I was really happy, and Second Year I got to like 2.2 and I was like, uh! [unhappy sound] so that was why- that was like the main reason why Second Year was so awful, and then like, and since then I got some medication and sorted myself out a little bit and Third Year has been good. And also just doing a project. I really like project work. Yeah. [Interview 1]*

In her final year Jane was more interested in maintaining a closer group of friends, though she still struggled to engage completely with her degree programme. Jane also became aware that depression was a common problem amongst those around

her and became aware of the support available to her, which she did not know about prior to this experience; though she was also unaware that she was suffering from depression. However, Jane opted for private help with financial support from her parents as she was unsatisfied with the support at Yorkshire Urban.

Based on her experience, Jane had decided that she would return home after her degree. She felt that being with her family was worth more than the 'experience' from a 'good education'.

*Jane: Um, some friends who have tried to go to university and either dropped out or just really hated it, um and then some, yeah, some who are in university. Or some who have just had really awful upbringings and stuff. Which obviously affects them. Yeah, all different people but I do think it's particularly common in students, because you're under a lot of pressure basically and everything changes all at once, do you know what I mean, it's kind of like prime conditions for that sort of thing.*

*Me: How might you feel when you move to your next stage, when you graduate?*

*Jane: I think I'm more prepared for it actually. I'm looking forward to it rather than being scared about it. [...] So it's going to be like moving close to home even if I'm in a different city. I can still pop home for the weekend and stuff. Go have Sunday dinner with my parents [laughs] Yeah, so I'm not worried about it to be honest. I'm quite looking forward to it. I'm more worried about what I'm actually going to do while I'm there [both laugh] [Interview 2]*

Contrary to the expectation of going away to university to 'become' an adult, Jane felt being at home was more important. On returning home and beginning to work, Jane was overcome by a sense of independence. She had previously put off looking for work because she lacked self-confidence.

*Jane: It feels good, I think everything is really good because like I said I've got a good job now, I'm surrounded by my family, I'm back with some of my old school friends and just doing fun things on the weekends and there's no pressure any more for anything, I think that's the main thing, that's what has made such a difference and that's why I'm so happy now because I can live my life and do whatever I want and I'm still being an adult because I've got a job, I'm not just lazing around, I'm not ashamed of myself, it's like I don't need to have a really stressful life in order to be a functioning adult, does that make sense?*

*[...]*

*Me: So is it anything to do with independence?*

*Jane: It doesn't seem to have much to do with it, no perhaps it does, like earning my own money I think, that makes me feel like actually I would be okay on my own, does that make sense? I was worried that I wouldn't mentally cope with having any sort of job, that's how bad it was so now that I've got a job I'm actually really happy and it's proved to myself that I'm capable of that and it doesn't have to feel like the end of the world when you're a bit tired one day or it doesn't have to be stressful every day, just normal life, whereas that's what I was scared of, about getting a*

*job I thought would be just as bad as what every day was on my degree but it's just very different. [Interview 3]*

Jane had previously doubted her capacity to undertake a job because of her experience of depression during her degree where her confidence in herself was negatively impacted. A desire to free herself from the pressures she faced during her degree made her postpone the offers she received for a Masters programme. This pressure placed on Jane is not necessarily unique to her, but defined how she made her decisions, and was a concern that was personal to her. In addition to other pressures on young people, they must also consider their own expectations for themselves, which is often obscured. The last time I spoke to Jane she was very happy with where she was and had a plan that incorporated her need to be close to her family while also doing something she was passionate about. This independence she felt from having a working life had influenced Jane positively.

*Jane: Oh, it's a different era for me [laughter]. I'm like a completely different person, basically, to when I was at university.*

*Me: How do you mean?*

*Jane: [...] I'm motivated to get where I want to go, even if it takes a bit longer and actually, I'm glad that it's going to take a bit longer because it means that I get to develop personally and I get to find my own interests within Science that I want to pursue, rather than rushing into finding a career that is going to pay me well or have a future. I'd rather take my time and find something that I actually really care about.*

*Me: Is that also why you've done the part-time Masters?*

*Jane: Yeah, partly because I would want to just take it slow but even though I'll be at home so it'll be different, I don't want to repeat what it was like at university before because that's kind of a fear for me; that I'm just going to go back and it's going to overwhelm me. So I want to work alongside studying, so that it's not my whole life just studying towards a qualification; that it can be a part of my whole life, rather than just being a student, if that makes sense. [Interview 4]*

A transition from a degree was an opportunity to be independent. Although not different from others in its essence, this aspect of Jane's story which seems like a Fractured mode of Reflexivity is perhaps the most obvious one through which we may suggest that becoming a responsible adult appears to be separate from doing a degree. Alongside struggling with mental health and what turned out to be a difficult time at university, Jane also had an ethical dilemma about the type of career she intended for herself when thinking of her future.

#### **6.4.2 Finding the right (career) path**

Jane did not find it compulsory to pick a defined career path, but rather opted to maintain an ethical position about getting a job while simultaneously staying mostly true to her disciplinary training.

*Jane: I studied Physics because I wanted probably a job in industry. Or like, yeah, not in academia, I don't know if industry is the right word but like going out into the world. So I wanted to do like finance or maybe like business or something or maybe um... manufacturing, something like that. But now I just feel that all of that's a bit soul-sucking [laughs] like 'cause I don't know if I could really enjoy doing finance or something cause like the whole purpose is to like make money, if you know what I mean. Whereas research kind of feels like it has a higher purpose. So I don't know what made me come to that conclusion, I think it was just like going through many, many options and just none of them feeling... right. Like there were so many where I was like yeah that would be alright, that would be interesting. Um, but like I didn't ever get the feeling like, I really want to do that, that's what I'm gonna do.*

*Me: You said it fulfils a higher purpose... Is that a personal thing?*

*Jane: Yeah, maybe it just um. It's just like, science is the search for knowledge, isn't it, which I suppose is quite a worthy purpose. [Interview 1]*

This perception stayed the same closer to graduating. Jane was keen on a Masters programme, though kept her options open. She still had an ethical reason for maintaining her distance from some types of jobs and did not feel it appealed to her conscience.

*Jane: Like, a lot of jobs you can get with physics are like, they don't really have a human element. Like finance or industry like manufacturing or something. Which I don't know is not nice I wouldn't wanna be part of that. I'd rather contribute to something that helps people.*

*Me: And why do you think those might not?*

*Jane: I mean maybe they do indirectly but they, I dunno, they're more about making money, aren't they? And selling things. Which I don't really care about. And it just hurts people in the end. I dunno.*

*Me: That Globalisation module has... [both laugh]*

*Jane: It actually has! It's like flipped my world view. I'm just like anti-capitalism, down with corporations! [laughs]*

*[...]*

*Me: So what's running through your head about it?*

*Jane: Um, just that I wanna do something that will make me happy and I'm not sure what that is to be honest. I'm afraid that if I do more physics it's going to be, it's gonna feel like the same I have for the past 3 years and I might just be done with it by now if you know what I mean. I feel like I might - I might want a bit of a break from physics. But then if I take something else I might not feel passionate about it like I do about Physics. And I might just not really enjoy it that much. But I am happy to be graduating. I feel ready to be graduating. It was the same when I got to the end of secondary school I was like I'm so done with this. I'm ready to move on! [Interview 2]*

Here Jane was referring to an optional module she undertook in a different department with a different disciplinary foundation, which is a provision of electives in Yorkshire Urban. This module directly influenced how Jane saw the world and

began to assess her place in it as a person, but also to think of what she wanted out of life.

*Me: You are a little split on it, there are aspects of one that excite you, but you also mention biology?*

*Jane: Yeah, I think it's what really interests me versus what's going to make me fulfilled in a job. Which biology might make me more fulfilled. Also I think it might be easier. Not that biology is an easy subject, but like some, one of the PhD students said that condensed matter is the hardest group in Physics. [...] But I think people are more competitive in that area more than other areas. I dunno why. And I don't think I want to have to compete all my life. I just don't want to always be worried if I'm progressing fast enough or am I gonna make that next promotion or whatever. That's just a rubbish way to live, don't you think? [Interview 2]*

This prioritisation of her mental wellbeing eventually led her to temporary jobs when she finally graduated, something she was happy she did. Yet she did not lose sight of her plan, nor her love for her discipline. Instead, she reiterated her different outlook on life and 'achievement'.

*Me: Were you thinking of doing your Masters this year?*

*Jane: No not this year, I rejected those places that I got, I think it will be soon, it is something definitely in the future that I'll do because I want to do something that transfers more between physics and biology or chemistry because then I can get a lab job more easily and that's the sort of job I'd really like, something practical I think.*

*Me: What made you decide you want to do a lab job?*

*Jane: I think my dissertation because I really enjoyed doing that and being involved in research and just working in a lab. Ideally, I'd love to be a research assistant or something and then eventually get my own PhD and stuff but I have decided I shouldn't rush it, if I do that in ten years' time that's fine, do you know what I mean? [Interview 3]*

Through the process of her degree, Jane had evidently honed her disciplinary skills, and it had given her a nudge in the direction of a potential research path. She also understood the importance of developing a sense of self. Despite the damaging experience of depression, Jane had learnt what she calls 'life skills' through her programme.

*Jane: Yeah, I mean I learned so much basically like life skills aside from physics and I did get the chance to do proper physics and I do know that I like physics and I love physics now, so yeah, I got that from it.*

*Me: What do you mean by life skills?*

*Jane: I don't know just meeting all kinds of different people I suppose and being less of a doormat maybe, I can stand up for myself now do you know what I mean [yeah] because I was just very naïve when I came to uni at first so not any more after that. [Interview 3]*

Jane also returned to the idea she had toyed with earlier in terms of using physics in a biology-related context, specifically within the National Health Service. She had

found an avenue in which she was interested, and could be happy in. It is interesting to note that Jane continued to negotiate her options.

*Jane: It was just online research, basically. My dad, through various friends, put me in contact with someone who's done that project and he's done the NHS training. I got to meet up with him and he told me quite a lot about it. It just sounds pretty good because he said they get to do their little project and their own research, basically, which is really cool. I think that would be good preparation. Firstly, it would be good for getting a job and then also if I ever want to do Research in the future. [Interview 4]*

More importantly, Jane was able to take stock of her experiences thus far and find a path with which she was comfortable and happy.

*Jane: It's probably just what I've already told you. It's given me a lot of motivation to continue to walk my own path and take as long as I need to take because the only thing that limits you really is your own practical things, like money. If you want to continue in education, you need money. If I take a year to earn money for that, then it's not a big deal for me. I don't think I'm in a rush, and university has taught me that, because when I started university, I said, 'Yeah, I'm going to get a First and then I'm going to do some high-powered graduate scheme. I'm then going to go into Finance and earn loads of money'. I don't think that would have made me happy, to be honest because it's not really what I value in life. I don't really value money, except to use it to live. I don't know.*

*Me: Did you have that perspective though? Was that what you entered thinking you would do?*

*Jane: No, I wanted to earn money when I started. I wanted to have a high paying job when I started university. I didn't know what job I wanted to do. That's one thing that's changed a lot because I think I realised how much doing something you don't want to do can make you really unhappy and because maybe I hadn't been super-unhappy before that, I didn't really see the reality of that. I hope this is helpful to you. I don't know if I'm really answering your questions.*

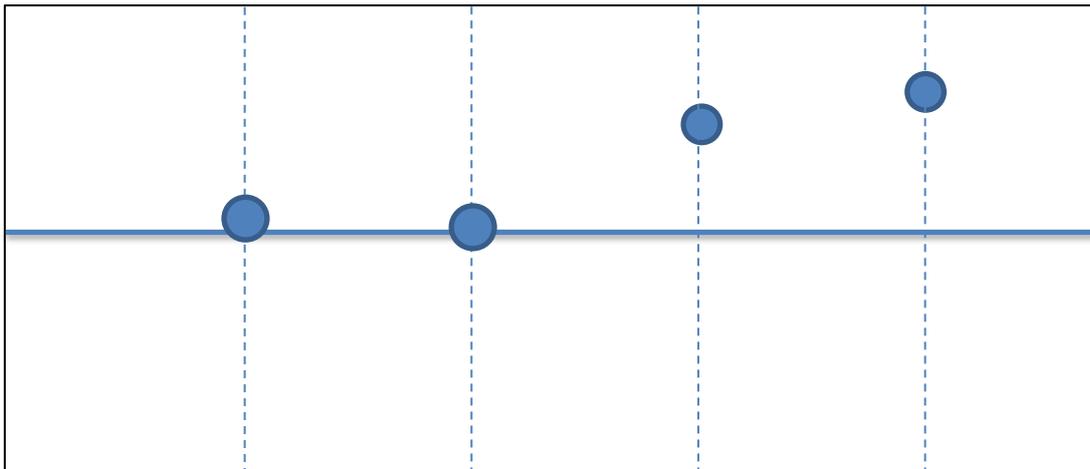
*Me: No, that is, yeah. Yeah, it definitely is. Is there anything else you'd like to tell me?*

*Jane: I don't think so, to be honest. No, I'm just a lot happier now. I'm glad it's done. I'm glad I did it, but I wouldn't want to do it again [laughter]. [Interview 4]*

Jane was determined to be a scientist, as she wanted to all her life. Nothing was going to stop her even if it took her longer to get to it.

Jane's story is one of struggle and is reflective of a problem within British Higher Education, as well as its society. Jane constantly reiterated how such an experience helped her develop herself further. In fact, she seemed involved with social issues as a result of her experiences at university. This did not take away from Jane's interest in her discipline, and passion for science, which she felt was a part of her for a very long time. The degree process supported Jane's love for science. Jane therefore continued on her path, but at her own pace.

### 6.4.3 Summary of Jane's trajectory



**Figure 14 Jane's trajectory**

Jane's relationship with her career was influenced by her experience during her time at university. Mental wellbeing and a strong ethical perspective against capitalism led her to plan on staying in academia. Initially, the dominant mode was as a fractured reflexive as her experience of depression had a deep impression on all subsequent decisions. Despite the negative experience that Jane had, it is nonetheless a story of learning with a positive end. Therefore, when I met Jane, she was not as immersed into a Fractured mode of reflexivity which seemed to have been the case previously, but rather seemed to have a meta-reflexive mode of decision-making. The factor that changed her relationship with employment was returning home. On returning home in the third interview, Jane reported feeling much better. Undertaking an entry level administrative temporary job, she felt more confident about her capacity to work than she did when she was at university. The diagram above therefore shows a leap in terms of her relationship with employment, though work itself did not occupy a large amount of her reflection on where she was in life. In the final interview, Jane was very happy with where she was and she did not let work over-power her life. She was preparing for a future that suited her ethical perspective. There was also an element of her receiving encouragement from her family which makes this final stage a dual reflexive situation of meta-reflexivity and communicative reflexivity.

## 6.5 Ash

Ash was born in Southern Spain and on returning to the UK at a very young age, grew up on a farm in East Yorkshire where his father started an animal husbandry-based company which although is currently thriving, Ash noted that he did not grow up seeing the wealth it now generates. At a young age, Ash's parents divorced and

he divided his time equally between parents, though at times was more with his mother. When asked about his socioeconomic class, Ash explained

*Ash: [...] for years we didn't have any money, but now I'd say we're quite well off on my dad's side. And for my mum, my mum and kind of my step-dad, they've never been bothered by money so they've always been working class, but everything basically has always been on experiences rather than material, so I guess when me and my dad would go away, we didn't have any money, but we'd spend it on doing things like that so, I don't know. I don't know what socioeconomic class that puts me in. [Interview 2]*

This connection with travelling that Ash had since a young age defined the way he constructed the lifestyle he hoped to have in the future through his work. However, as he did not want to continue in his father's business, but rather pursue his interest in technology, he decided to undertake a degree. Furthermore, he did not enjoy the region in which he grew up and was more enamoured by a city-life. What follows is the way in which Ash negotiated these priorities and concerns to form projects that influenced his practice and decisions while undertaking his degree and subsequently transitioning into work. When I last spoke to Ash, he was on a graduate scheme with a big financial consultancy firm. As part of this, Ash hoped to work on forensic data analysis in financial crime, putting his analytical skills and interest in emerging technology to use. His main concerns were to get a job that was different to his father's rural-based company, and to be able to continue to travel with his current work.

### **6.5.1 The importance of being employable**

Picking university was an obvious path for Ash, but it was not common amongst others around him.

*Ash: There weren't many people from my 6th form that went to university, there was only about 12 of us that went. Um, quite a lot of people at my 6th form failed first year so they were held back a year, so our second year was quite small. So it wasn't like loads of us were going off to Uni, it was only a few close friends as well maybe 4 or 5, um so that was kind of a bit daunting, but I was never not going to go because other people weren't. [Interview 1]*

He saw doing a degree in physics as a good way to keep his options open for a job, as it didn't 'funnel' him into a career, and summed up his desire to go to university as a combination of social experience and employment opportunities gained from going to university and being in a city, which stood in contrast to the life he was used to when growing up.

*Ash: I knew that I didn't want to go into anything manual labour based, because I've worked with my dad for 5 or 6 years before university, since I was young. So I was like, "alright no, I hate doing this", so I wanna go into something where I can, problem-solve, and... I've always enjoyed working on computers and stuff, so, um, that was another- I wanted to*

*get out of working for my dad and workin' the manual labour. I didn't wanna be stuck in that rut. Um... I guess they're the 2 main reasons, you know. Career prospects and meeting new people and the experience of university. [Interview 1]*

In addition to his interest in technology and computer programming, a defining point at which Ash realised he would not be filling the STEM skill gap, so to speak, was when he transitioned to his Second Year of study.

*Ash: The intensity was too much and I realise I didn't enjoy it too much, as much as I used to because before I could just- if there was something I didn't enjoy I could just get by on being able to do it, whereas because now it was, because in Second Year it got a bit more complex, I had to put in that time to learn it. But then I wasn't enjoying it as much- I wasn't enjoying it so that kind of really weighed down, and I was like I don't really want to go into Physics, uh, post-university. [Interview 1]*

Nevertheless, his degree enabled him to use his strengths to access a rapidly-changing employment landscape. He believed that the technical, hard skills he learnt from his degree would stand him in good stead for jobs. Despite being a difficult year for his studies, Ash gained from the social side of university life, living with students from a department with a higher proportion of students doing the Year in Industry. When Ash learnt about this, he enquired about it in his department as he felt it would be 'amazing'. Living with these individuals meant that Ash did not need the help of his department when applying for a placement as he felt they would not be able to help him with a placement in the financial sector. It is interesting to note that Ash did not use any services offered by the university directly, although he gained indirectly through other students. The Careers Centre did not become a point of contact as he was able to get all required information from the people he lived with. Ash felt that this opportunity 'will 100% help you' (Interview 1) with work, and was committed to promoting it in his department following his return. However, he was disappointed by the lack of enthusiasm of others.

*Ash: I think doing a placement year was amazing for me, and I'm just kind of grateful that I lived with the people I did in Second Year. [...] And then you know when I came back, we all did a presentation on it and I tried to get people involved in it quite a lot. And gave people my e-mail addresses and chatted to them after. Cause I did one in finance whereas most people were in research. So quite a lot of people that wanted to come into finance were speaking to me. Um, and you know tried to... just get them involved in it a little bit, and get them a little bit more proactive. [...] It's no big deal but... I don't think I heard back from a single person maybe one person and then I think no, but like ah! [sounds of frustration] [sighs] it's a little bit useless... [Interview 1]*

Ash did feel that physics students sometimes lacked the drive and communication skills necessary to get the jobs they were capable of doing, at salaries that reflected their skills and capacities.

*Ash: I think whatever it [the average wage of physics graduates] is, it should probably be higher because the skills that you develop and the kind of people that go into physics should be able to go into jobs and they're the kind of people that should be working at the top tier jobs, and they should be able to take their pick. I don't know if, if people ever end up unemployed after physics and they don't end up in education or a role. um... so in that sense I always think... there should be more being done... because the people should always end up at the best jobs and the kind of... if that's not happening you know there has to be some sort of question as to why [Interview 1]*

This comment was made by Ash as he compared the type of work and training that a physics student undergoes as compared to students in the department of his housemates, suggesting that the latter do not undergo as rigorous a degree as physics students do, and yet they command high salaries.

Despite the seeming mismatch between a physics degree and the financial sector, Ash felt that his degree and the skills he learnt helped him a lot in his placement, right from getting accepted to performing the job, particularly his numeric and analytical capacity. His experience helped him as he went on to apply for jobs in his final year, as it added to his CV, and also gave him insight into the application process, having undertaken the process prior to having to find a graduate job. The next time I met him, Ash had secured a graduate job in forensic technology with a finance-based firm in London. As Ash narrated his future job, it was evident that the skills he intended to deploy including 'data analysis and hopefully lots of innovative new software, [...] working at the forefront of tech' [Interview 2], coincided with what a Physics graduate is expected to use when transitioning to the world of work. This was echoed in his experience of doing his dissertation, which was a useful tool when he presented himself as a potential employee.

*Ash: I really liked the coding aspect of it, and also the practical aspect of it, so we built a, built loads of mini circuits with a raspberry pi. [...] It was cool. And it was, that was great for talking about in interviews, because it was lots of programming; if I was doing theoretical or a dissertation type project, it would have been useless for talking about in interviews. But because I was using practical applications, it was something that you could talk through and people would kind of understand it in a way [...] And in one of them with a partner I got a video on my phone- a video of the project on my phone of the actual LED array flashing and I showed it to him in the interview, and he was like "ah that's pretty cool". You know, he really liked it, and that was one of the jobs I got an offer for. So obviously it did come in use. [Interview 2]*

He hoped to also be taken seriously going forward, rather than be dismissed for being young. Being part of a small but fast-growing team was a positive step in this direction.

*Ash: And then you know that will hopefully mean that they're, they think "oh god, you guys actually do know, do know a little bit, and they are valuable" rather than "oh no we know best because we've been here for*

ages" so. Yeah really, pretty chuffed about that. Like that was, yeah, I was very happy to have that offer. And then go down to London as well - it's in London. So yeah that was another criteria that it met, which was pretty cool. [Interview 2]

This link between his degree skills, university life experience and work continued into the workplace; it also helped that he successfully achieved a 2.1 classification which was needed to finalise the offer.

*Me: And is there anything from your experience during your time at university that you have used now or found useful?*

*Ash: Yeah, definitely. Pretty much everything. All the sort of people skills I gained at uni, all the logical thinking during my course, all the, like, mathematical ability that helps in certain areas where people, like coding and programming skills as well where people don't necessarily expect you to have those skills and then you develop them while at university. So the language is something that we use quite a lot within the department so having a bit of exposure to that during my final year and in second year has been really good for, you know, making sure that it's not a completely new learning process. [...] But then, you know, all the other skills around teamwork and more soft things like communication that you don't necessarily realise that you're working on but develop at university so much from when you're at A levels. So yeah, I have to say so much of it from kind of soft skills to kind of technical. Everything. [Interview 4]*

In this new location, Ash lived with people he shared a house with in his last year at university, which made the transition smoother. He used the skills learnt from his degree, both hard skills (technical) and soft skills (non-technical capacities). However, he continued to feel concerned for other students who did not have the exposure to the many opportunities he had found out about through his housemates at Yorkshire Urban. He wondered whether members of staff were aware of the extent to which students have to manage multiple pressing priorities simultaneously.

*Ash: It was a little bit overwhelming at some points because it was a lot of work to do and when I was having to apply for graduate jobs in September, October of final year and November while I was doing experiments and producing reports and revising for exams but it was definitely a worthwhile thing to do because it meant that I could have the second half of final year all relaxed about career because I'd got a job and I just needed to focus on university results really. [...] I think I went down to London 15 times or something while I was in my first semester, you know, for different job interviews and then I had loads of phone interviews as well. So, you know, it does take a lot of time but I think it's something that, you know, maybe could be focused on a little bit more and given a little bit more respect by some of the university staff because it is such a big task to be able to apply for jobs and complete all the high pressure work in your final year. It's like having two jobs basically. So, and I don't know if people are particularly aware of that but yeah. [Interview 4]*

Here Ash stressed a need for change in attitude from members of staff. The employability agenda has been received differently by different people – some

support it whilst others reject it, and many on both sides potentially have a lack of knowledge of the demanding nature of job-searching. Regardless of this, young people continue to be subject to a rapidly changing employment market with precarity potentially around the corner, something for which they need to be ever ready. The political objective to fuel a Knowledge Economy defines the narratives about the types of jobs that one ought to aspire to under a meritocracy, as arguably mythical as it may be, and thus defines how worth is constructed. This is coupled with a neoliberal market economy which works outside of the needs of the population, yet is permitted to thrive. Under a massified HE system, there will continue to be young people undertaking degrees without the intention to pursue the discipline at a higher level. However, it can also be argued that in the case of Ash, he would use the high-level skills he developed through his degree such as computing and problem solving, even when employed in a role that is not a conventionally viewed as relating to STEM.

### **6.5.2 Social and geographical mobility**

The second theme of Ash's concerns regarding his future related to geography, specifically travel and mobility away from his hometown. Ash wanted to continue to have a good life with travel whilst not being in a rural part of the country. Previously Ash explained that he would not call the places he grew up in 'home', as his parents were separated and he spent his time almost equally between them. The idea of home to Ash was in going to University – Yorkshire Urban became his *home* (Interview 2). On a more global and rather existential scale, Ash hoped to develop experiences by being in different places and learning new things while putting his skills to use, something he is looking forward to.

*Ash: Yeah. I've always travelled a lot and I've always found it you know. When I was younger, me and my dad would always go on holiday, [...] I thought that was a good way of getting experience in the world and meeting lots of people even when I was really young, and kind of opened your eyes a bit to more than education and having a good career. It kind of keeps you grounded so... That's something that I really wanted in my career. [Interview 2]*

Therefore, mobility weighed heavily on how Ash constructed his future and made decisions. Ash also compared the experience of working in different locations. The experience of having a Year in Industry meant that Ash was in a full-time paid job for a year, about which he said the experience was different as he lived more centrally in Yorkshire Urban, and in a better house as he could afford it on a salary. This luxury did not exist when he moved to London to undertake his graduate scheme, where housing is a contentious topic, more so than in Yorkshire, however there was some prestige afforded from being in the capital.

*Me: Oh okay. How come you decided to go to London rather than any of the other locations?*

*Ash: Well it just kind of makes it a bit more exciting starting work, you know, going to the financial capital, the biggest city in the country and where lots of people say is the best country in the- is the best city in the world. So, you know, lots of people absolutely love it so I've always kind of wanted to come down to London and work here for a little bit of time so when, if, you know, a job enabled me to do that I was definitely going to take it, if the job was right as well.*

*Me: Yeah. How was moving down?*

*Ash: Oh, so stressful [laughter]. We still haven't set up. [Interview 3]*

He went on to explain problems with getting accommodation, but was able to find people from Yorkshire Urban University who were going to London, and along with them looked for houses. The sense of relief at not having to return to the rural landscape of his childhood, alongside hope and a hint of fear characterised his comparison of the locations and his plan for the future.

*Me: So what are your plans for the next six months, one year, however long you've thought of in the future?*

*Ash: Hmm. I haven't really thought about the future. It's not, I don't really do that. I've never really done it. Don't really know. I guess can only really work as- well, get involved in as much work as possible and kind of give a good impression of myself at the start of the job and then see where that takes us and see if it takes me travelling or working in different areas or, you know, who I end up working with. But another reason I moved down to London is to explore the area looking at, you know, the city and go out, you know, go outside and wander round and get lost and explore. [...] and just enjoying being in a new city, calling it home, I guess.*

*Me: What would have been different if you were back home?*

*Ash: Oh my. That is not a good thing to think about. Well there's nothing in my home town so [laughs] I wouldn't have been able to get a very good job. I wouldn't have, yeah, I'd have just been probably quite demotivated and I don't know, not particularly enjoying work. Oh, I probably wouldn't have been looking forward to the next six months if that makes sense. [Interview 3]*

However, there perhaps were some expenses that were not evident initially. In the final interview, Ash commented on financial management, and saving up whilst maintaining a work-life balance, even if it did not always play out in his favour, with work demanding a majority of his time.

*Ash: Just everything's quite expensive so there's loads of things to do. Lots of places to eat and it can be quite difficult to stop spending everything that you earn but it's all good fun. I've started to try and budget a little bit more now. You know, when you first move somewhere you don't really want to save, you want to kind of do stuff [...]. But since, yeah, it's been really nice. It's good moving with people from university because it means that we know, like we all know each other [mm-hmm] so it's nice coming back from work and we can still reminisce about everything that we've done at uni and then go off and it kind of makes it a little bit easier than living with randomers [sic]. [Interview 4]*

In the long run, Ash's focus shifted slightly, and reflected his earlier thoughts on employability which he felt related to being 'an asset to a company' but also,

*Ash: it's not all about working for a company. You know, if you have these skills you need a little bit of experience but then that kind of sets you up to do whatever you want yourself you know, if you've got this kind of confident mind-set and you've got tech skills, you maybe need a bit of industrial experience but then you can go, you can be a contractor you can set up your own business [...] so for the moment you can define employability as that, as working for somebody else, but then in the future you develop those skills where you don't have to [work for someone else]. [Interview 1]*

This sentiment was echoed when Ash spoke about what he wanted to do going further from his current graduate job.

*Ash: once I've got that maybe move to another more technical role for a couple of years at, you know, a start-up or something like that and work with a smaller group of people where I feel like I can have more of an impact than there is working in a huge company [mm-hmm]. But haven't really put too much thought in yet. [...]*

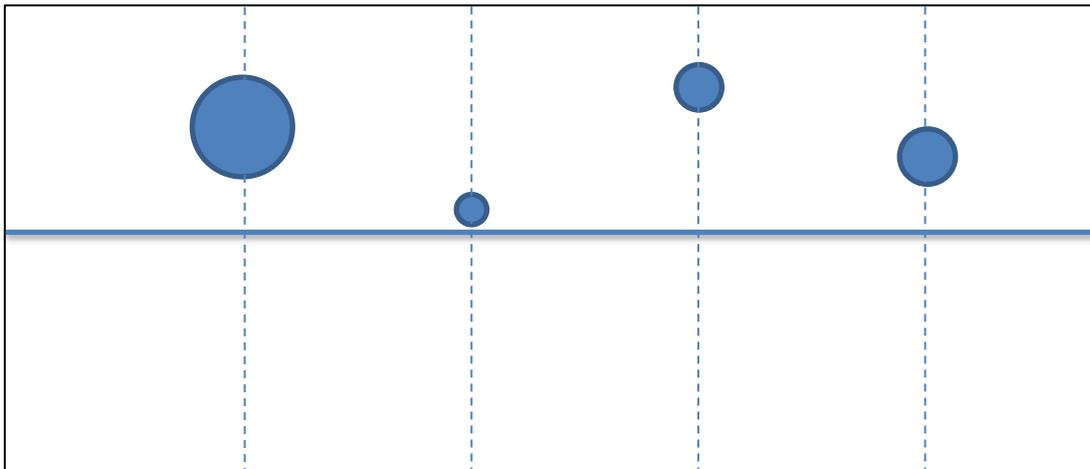
*Me: Would you want to stay with your current company?*

*Ash: For two years definitely and then at the moment probably not because- as in after two years I probably- well I'll definitely look what other jobs I could get because, you know, I want to, I'd rather work for a small company and help someone that's started their own business or something and, you know, a team of 10 or a team of five and work where I feel like I can actually make an impact because working at such a large company has its benefits but one of the negatives is that you just feel sort of like a cog in the huge machine. You get plenty of recognition and things but really at the end of the day it's like 'oh, what am I actually doing?' Just, you know, I'm doing a small process within a large company. So I definitely think it's valuable to work somewhere like this but long term I don't know. [Interview 4]*

These plans for the future that Ash had hints at an expectation for a further transition in life and raises the question of the importance of these two years following a degree. It is yet ambiguous whether they are formative, decisive, or a 'buffer' / 'cooling-off' period which new graduates need to have before moving forward into the workforce.

Ash's story begs closer attention be paid to the two years following a degree and how young people transition from them. As a successful graduate, Ash nonetheless is different as he is not the traditional STEM graduate, though he uses the appropriate skills expected of a physics graduate. He also experienced work different to that which he had during his Industrial placement. In a way, revisions to the Destinations of Leavers from Higher Education (DLHE) survey to be undertaken fifteen months following graduation rather than the previously existing six-month follow-up reflect this instability as young people transition from a degree to the workforce.

### 6.5.3 Summary of Ash's trajectory



**Figure 15 Ash's trajectory**

During our first meeting, as seen in **Figure 15**, a large amount of Ash's time was taken up engaging with his career future. He was confident about his potential to get a graduate scheme offer as he had completed a Year in Industry. However, he had to put in a lot of effort to get there, not dissimilar to Isaac (**section 6.2**) and Louise (**section 6.7**).

Ash's story suggests his Internal Conversations were predominantly Communicative and Autonomous Reflexive. The latter emerged more dominant as the former is used in instances where Ash aimed to further his own sense of an objective future, even if the opportunities are sometimes sought through discussion with others. Although his father was doing well, the 'goods' or privileges did not translate to anything that Ash could rely on for himself. By the second interview he was relieved to have got a job and was able to focus on his studies which he had started to enjoy as a result. In the third interview, Ash was moving to London to begin his work and was excited, though the work itself was not taking up as much time as moving to London. In our final interview, Ash had engrossed himself in his new life, though he was already planning for the time after his then current job. Perhaps this hints at a third mode, of meta-reflexivity, coming into play as mobility defined the way he considered his future. This will be discussed further across participants in **Chapter 7, section 7.3.1**.

## 6.6 George

George is from the East Midlands in England. He knew he wanted to do science from a young age; the only question was which one. During his A-levels he culled the list, noticing that physics suited him best as he would perform well in it. He hoped to get *'as broad a scope as possible and then find one of these options to then do a Masters*

and PhD in eventually' (Interview 1). His mind seemed set on this throughout the research period. George did have some positive encouragement as a child though.

*George: It was my eldest brother, he was quite interested in physics, I think he nearly did physics at university but then he did medicine and stuff but yeah he always used to teach me a bit about whatever he was learning in A Levels and that kind of thing and he would buy me little like I suppose layman's terms books about quantum mechanics or relativity or string theory, those kinds of things and that's what got me interested in theoretical physics [Interview 3]*

Following his degree, in which he performed with excellence, George started a Masters in Theoretical Physics. From here, he tried to hone in on the area of physics with which he related most in order to pursue that as a PhD.

*George: Okay. I want to make a career in research really so it's just a, it's another box to tick really. On top of that I'd quite like, I just quite like the idea of doing a PhD and sort of, you know, carrying on your education to the terminal point and kind of becoming an expert in something. I've always quite like and I quite admired people that do PhDs and things. [Interview 4]*

This process of selection defines George's story. It is coupled with encountering some problems within academia and British Higher Education. His concerns related to practical, institution-related (university administration, policy, education), and some personal barriers. He developed projects to overcome them, and as he said about his way of dealing with mental health, just focused on coming out the other side [Interview 4]. His two concerns were the need for CV-building (though he steered clear of calling it employability, which he associated with non-academic jobs) to support an academic career, and concerns about the impact of problems within academia, often on himself.

### **6.6.1 Prestige and CV building**

George saw his future in context, i.e. that he wanted to get into academia and had to play the field according to its landscape.

*Me: What about all 3 years of study. Were there things that you know, um that you decided to do. Like you know you did your study abroad. What made you decide to do that and...?*

*George: yeah, I decided to do that because um, I, I wanted to sort of get a sort of prestigious university on my degree. [smiles] So I decided to study abroad, and then sort of part time I did this internship. And for the second semester someone I worked with at the internship, he invited me to come to Paris um and work in his research group there, so I did the second semester full time as an intern. So I think I got some names, quite a few names on my CV. So I was quite happy about it. [Interview 1]*

This opportunity of the Study Abroad gave George insight into the way academia functioned from a different country context. This experience itself grew out of a problem – the classes at an undergraduate level in the study abroad country were

not in English. He therefore decided to try to do an internship which led to the situation described in the quote above. When asked about employability, he constructed a relationship with his decisions, though seemed uncertain of a direct link to a broader employability agenda.

*Me: Is [employability] relevant for what you want to do?*

*George: I think what I have done has helped my employability. But I don't know about things that are kind of specific to a job in academia apart from getting the internships. Um... but yeah, I don't think there's been anything, while I've been at Yorkshire Urban anyway, that I've picked and thought "that will make me more employable in academia later on". Maybe I should have... Perhaps. Yeah. [Interview 1]*

George's reasoning stayed the same as he selected a Masters programme. Prestige was an important aspect, as he accepted an offer at an old Scottish university. I will call it Old Scottish (location) University.

*George: I've always wanted to go to one of these really old, ancient universities because they've got a lot of history and they're very interesting and so when I was applying for Masters, I just applied to all of those, I think. I applied for Imperial as well and I actually got an offer from Imperial which I was quite pleased about but I don't think I could afford to live in London [laughter]. I think I prefer [Old Scottish] really. London is a bit too big and a bit too expensive. [Interview 2]*

Here we see two influencing factors on decision/making for George – one for employment and one for financial purposes. This became more evident as he spoke.

*George: I did a small, short-term job as a Research Interviewer for the Times Higher Education Final Year Student Survey. That was about two weeks long, I think. It was really tough in the end, I think. It was a lot more work than they said it was going to be in the beginning but I did it in the end and it's on my CV now and I can forget about it. It was really hard, as I'm sure you know, trying to get people. [...] and also, I've been doing a job that's only ended up being about an hour a week. I'm a Personal Assistant for an international student who's disabled. [...] That's been about it but hopefully those all look good. [...]*

*Me: That's quite different from Physics' jobs. Is there a reason why you thought of doing things that are not necessarily just related to getting placements or something like that?*

*George: Obviously, another side of it which was very important was just the extra money to help me through university financially. I applied to everything I could, basically and those were the two I got. Hopefully, that looks good as well and that I'm not just a one trick pony. I can do other things as well.*

*Me: Do you rely primarily on the student loan then, if you don't mind? If it's something that you don't want to talk about...*

*George: No, that's fine. I rely on my student loan quite a lot and also on help from my parents as well but I didn't want to rely on my parents too much this year because I'm 22 now. I want to be a bit more independent. [Interview 2]*

Sustaining himself rather than rely on parents was important in the transitioning process. Following his year abroad, George returned with the notion that he needed to improve his CV. The year abroad and internships changed his approach to preparation for his future as an independent individual. This was coupled with his personal circumstances as he alluded to the role of social networks which he did not necessarily have. If we consider linguistic styling, George distinguished himself ('you', and later a personal 'I') from the 'they/them'.

*Me: Do you think or do you have any thoughts on the role of socio-economic background in university?*

*George: Yeah, I think definitely the students that come from very wealthy backgrounds tend to have a lot more time to do other things. When they've been to really good private schools, they tend to have had the best possible start. I think that really helps them and it does give them a bit of an edge but then again, there is healthy competition, especially in Physics. I don't know quite why it is that way between privately educated and publicly educated. It's actually quite fun. If you're not from such a well-to-do background, I think you do appreciate it a bit more and I think, in some ways, you work a bit harder because you've not got anything else to fall back on. Yeah, I think that's about it.*

*Me: How do you think that might have an impact in the future or would a degree help that?*

*George: I don't know too much about the jobs market but I think I'm going to have a good degree from a good university and I think that's all that matters at the end but maybe it's easier to get that if you're from a more well-to-do background. I don't know but hopefully, I'll have that anyway.*

*Me: A good degree?*

*George: Yeah, a good degree. I think I've networked a bit more than other people will have and I think that will help more than anything else.  
[Interview 2]*

In a way, George mimicked, or rather appropriated, what Bourdieu characterised as distinction amongst the HE group which relies on its know-how within high/brow culture, or simply cultural capital.

*Within each fraction, the second factor opposes those individuals whose families have long been members of the bourgeoisie to those who have recently entered it, the parvenus: those who have the supreme privilege, seniority in privilege, who acquired their cultural capital by early, daily contact with rare, 'distinguished' things, people, places and shows, to those who owe their capital to an acquisitive effort directed by the educational system or guided by the serendipity of the autodidact, and whose relationship to it is more serious, more severe, often more tense. (Bourdieu, 1986a, p.265)*

Here Bourdieu, characterised HE teachers as originating from the bourgeoisie (elite), falling on the furthest end of the former of an axis comparing cultural capital with economic capital. To explain the difference, Bourdieu gives the example of going to the cinema wherein intellectuals would suggest that, quoting his participant, 'You go

to the theatre to see the play, not to show off your wardrobe' (ibid., p.270). This is a 'symbolic profit' and they would subsequently discuss it over a drink after the show. Whereas the economically wealthy would...

*'dress up to go out' (which costs both time and money), they buy the most expensive seats in the most expensive theatres just as in other areas they buy 'the best there is'; they go to a restaurant after the show. (ibid., p.270)*

In a way, the best solution was to ensure that he had aspects that would make him distinctive, and subsequently meritocratic ideals would support the transition process. His concern, therefore, was the context of a meritocracy, and the hope that the prestige associated with some universities that appeared on his CV alongside his work experience would make him a desirable candidate in whatever he picked.

George returned to his initial suggestion that employability may not be relevant to him as someone thinking of a PhD, but his degree could nonetheless support any unforeseen future change in career direction.

*George: I don't know because it's always quite different if you want to make a career in academia because then your employability's essentially your academic record I'd say. So yeah, but maybe I should have engaged a bit more with employability type events like, you know, careers fairs and that sort of thing 'cause if all this was to fail and I didn't get a PhD or maybe change my mind after the PhD or whatever, I don't know what I would go and do. I've heard that it's quite employable to have a physics degree but I don't know what there is so maybe I should have engaged a bit more with employability stuff.*

[...]

*Me: Yeah. Well yeah, like you did say physics is one of the most employable degrees so how would you feel about that?*

*George: Going into something else you mean if it didn't work? If it came to it I don't suppose I would mind it but it's not really what I'm passionate about and it's, but it is much better paid so... but I don't know.*

*Me: What is better paid?*

*George: Sorry?*

*Me: What is better paid you said?*

*George: Maybe going into finance or something like that, I don't know. Just something else really, like a proper job.*

*Me: What, 'proper job'?! [laughs] [Interview 4]*

Embedding himself within such an environment however raised further concerns regarding how one may find their way through the academic pathway. Despite being further from Bourdieu's French society of study in time and arguably culture, the tensions alluded to previously nevertheless manifest in more than macro-level processes, but influence micro, personal, experiences and decisions.

## 6.6.2 Precarious pathways through to academia

As George attempted to meander through the vast lands of academic career path-making, problems in the system began to emerge. His desire to remain in academia came up against contradictions within the system that are worth bearing in mind.

*Me: You were talking about changing perceptions of Higher Education...*

*George: My parents were saying in their day uni was a place you would go to learn something you were interested in, whereas nowadays it's very much kind of, you're almost a paying customer and you have a kind of goal at the end of getting a job and that's kind of the whole point of going to university to increase your employability. And get a job out of it. And people almost look down on people doing, doing a course that they're just interested in, because they won't get a job out of it. But I just think that's what it should be like. I mean I took physics because I really enjoyed it and I was good at it. I think if it had been something else I would have done that instead. I think there's too many people who fool themselves to do something they hate or they're not really good at because they'll get a good job out of it. I think that's what university should be like. [Interview 1]*

With this as a given context, there are other concerning aspects as George made his way through his degree, to his Masters and as he pondered on his career future.

When George considered his future, he also speculated potential barriers in terms of political events.

*George: Not to get too political, but Brexit is gonna be a big challenge and especially if I was to try and do a postdoc or- I was originally hoping to do a PhD back in the research group I worked in [during the year abroad in Europe], um... that's looking quite unlikely and if it did happen would be quite difficult to know cause it's too uncertain at the minute and I would be applying next year I think and I imagine it would still be uncertain at that point. So I think that's going to be a big challenge. As to how I'm going to overcome it, um... I don't really know. Hope for the best maybe [smiles] [Interview 1]*

As it came close to the time to graduate, George's concerns shifted slightly to focus on preparedness for his Masters programme.

*Me: How has your degree been now that it's pretty much only just there?*

*George: Yeah, I've done everything now. I've just got to graduate. No, it's been good. I think I've got a good grounding in a lot of different areas of Physics and Maths which I hope I can build on quite well with my Masters. I think it's prepared me very well, hopefully. Maybe in October, when you ask me again, I'll say, 'No, it's terrible. It didn't prepare me at all' [laughter]. [Interview 2]*

Sadly, it was the case that George felt slightly unprepared for his Masters programme, and described the process as a 'steep learning curve'.

*George: Well there are certain things that weren't covered in the sort of like core physics models at Yorkshire Urban that really ought to have been covered that I think most other places do cover which they kind of*

*assume you know here so I'm kind of learning that at the minute and it's not too bad but yeah it would have been better if I'd had a bit more of an understanding of these things. [Interview 3]*

Given that George's Masters programme focused on a certain section of Physics, one could expect some gaps in knowledge. Nevertheless, he continued to work hard to develop his understanding of these concepts, and kept an eye on his future career path.

*George: I'll be applying for PhD's in sort of November, December and so I've got my grades to go on and I don't know if usually with a PhD you can get a conditional offer, if you get a certain grade in your Masters, is that normal?*

*Me: I don't know...*

*George: oh ok, yeah, I was kind of hoping in my head that it will be a lot about my grades at Yorkshire Urban so hopefully this year I don't need to worry too much about doing really well, so I'm taking this year as more of a kind of personal thing, whereas I want to learn these things for me so I know them well hopefully. [Interview 3]*

During the last interview, however, this student who had graduated with an excellent first-class degree had been finding his Masters somewhat overwhelming, refocusing his energy on merely getting through it. Interestingly, he used a turn of phrase opposite to his previous expression when talking about building up his CV. He wanted to prove he was not a 'one-trick-pony' previously.

*George: I don't know, I suppose I sort of ended up jack of all trades and master of none really.*

*Me: Hmm. But why?*

*George: Yeah. Like I say, I can catch up on things and I could, you know, it's not too late to fix things.*

*Me: Yeah. I mean it is a good achievement also. I mean it's a massive achievement and...*

*George: Thank you.*

*Me: ...it's, I mean you're, you've been selected for a specialised masters so it's bound to be a bit...*

*George: Yeah, yeah, fair enough. And I think at the end of the day I've got it in my head that I've only really got to pass the year other than, you know, trying to worry about getting a good grade or anything. I've just got to pass it. That's what keeps me going with the idea of eight exams. [Interview 4]*

This concern about grades and answering exams made progressing difficult, and although George finally passed his Masters (confirmed through an e-mail exchange beyond fieldwork), he was happy it was done. George's experience reveals a tension between CV-building and gaining disciplinary knowledge. However, despite this gap in knowledge, he was glad for the breadth of topics his Bachelors offered as it did not force him to specialise.

*George: I suppose to a certain extent it's all been quite useful. I'd say the most useful thing from Yorkshire Urban was I did quite a broad range of topics so I've been in the position to kind of change my mind a couple of times in terms of what I want to do for PhDs and stuff 'cause yeah, I've now changed my mind again to sort of going more into cosmology. And 'cause at Yorkshire Urban I did quite a few astrophysics and cosmology courses and stuff so it's been quite nice to sort of say, 'Okay, well look. Particle physics stuff is probably too hard for me and not sure I enjoy it that much so I can still move on to something else that I covered, I did at Yorkshire Urban. [Interview 4]*

In addition to the insecurities that George found himself up against – his year abroad going wrong, and not being as prepared for his Masters programme – there was another element, one of personal life that worked as a barrier. Mental health and wellbeing at university, as part of an undergraduate experience, did not feature positively. He was rather happy to be moving on from it. It was disciplinary passion that remained a positive aspect.

*George: In the First Year, I had quite a bad experience. We had a thing called Peer Assisted Learning. My Mentor was a really horrible and really unpleasant guy. That really put me off for quite a while, I think. I felt quite bitter about it for a long while. It's only really this year that I've started to realise that things he said weren't right and he was just a horrible guy.*

*Me: Did you speak to anyone about that?*

*George: No. I didn't know who to speak to but he's left now and graduated a couple of years ago. I think in terms of good experiences, I've had a few really good lecturers that I think have really given me quite a passion for different subjects. I definitely had one this semester in one of my modules. She was really passionate about the subject and I think a bit of that passion did rub off on everyone which is good. I can't think of anything other than that. [Interview 2]*

George found himself needing to make sense of the experience to help him move on. He felt unable to report this behaviour and so there were no repercussions to the perpetrator. This was not the only instance in which George felt pressured in a way he did not like. The student 'clubbing' (parties) culture brought him some discomfort, to say the least. As a part of a broader gentrification process in cities in Britain (Chatterton, 2010), it is possibly difficult to dodge having to participate. He was therefore somewhat relieved to be moving on from his degree.

*George: It feels... yeah, I'm just really enjoying it, it feels a lot more grown up and yeah although I'm still a student I think being a post graduate you feel a bit more grown up, a bit less like a student I suppose, but yeah, I'm really enjoying it. I've got some friends coming round for a dinner party tonight so... yeah, I'm enjoying not having to go clubbing and that kind of stuff any more*

*Me: so you used to do all of that during your degree?*

*George: clubbing? Yeah people used to make me go clubbing sometimes. I never liked it, even when I was a fresher I didn't like it, it's too loud and noisy.*

[...]

*George: Yeah, it's quite strange because it's almost like an industry built on a whole customer base that doesn't really want to do it, it's like a whole industry built on peer pressure, it's a bit weird. [Interview 3]*

It was only with the final interview that mental health-related difficulties that he had been experiencing were shared, questioning the basis of the expected resilience from students.

*George: It's harder than it was at Yorkshire Urban but I'm quite enjoying the challenge and yeah, I feel like I'm learning a lot more than I was at Yorkshire Urban, which is quite nice.*

[...]

*Me: Oh wow, okay. And how are you coping with everything?*

*George: I do struggle from time to time, yeah, but my mental health hasn't been that great recently and that's sort of partly due to the stresses and stuff this semester and last semester as well.*

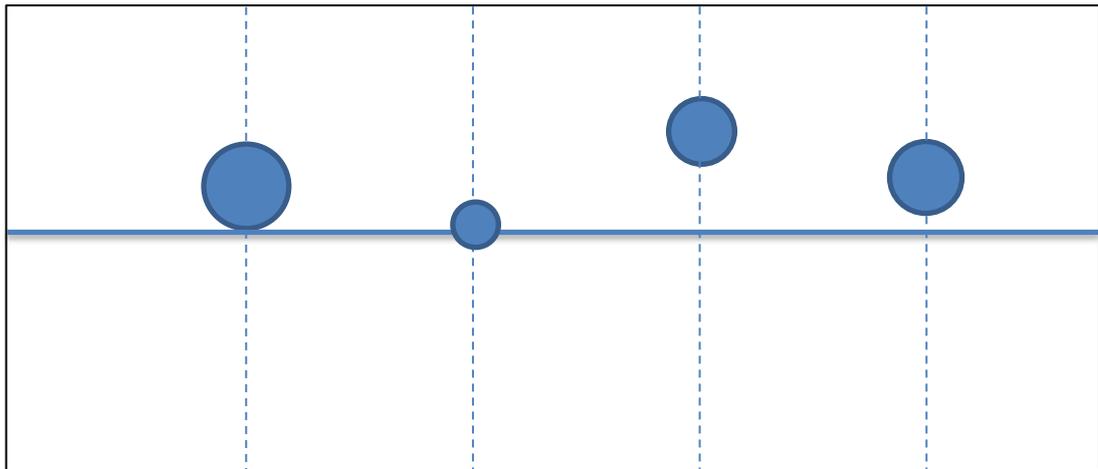
George was getting professional help for this, fortunately. He had also come to a conclusion that it was more important to focus on himself in the end.

*George: At the minute I'm trying to sort of do some stuff for myself to kind of, I don't know, help me relax a bit more and help me cope with things. So I've been going to the gym. I've started writing a blog about maths and physics, which has been, it's been quite therapeutic really [oh okay], I like it. I'm trying to see my mates a bit more but in terms of academic stuff I'm trying to have a little bit of time off 'cause I've been sort of studying all through Christmas as well. So I'm trying to take my foot off the pedal a bit, but I'm hoping to hear back about some PhDs soon and then I'll probably be preparing for interviews and stuff. [Interview 4]*

Finding his own pace and peace within a demanding HE environment became a concern George found himself dealing with, perhaps setting aside the explicit CV-building determination seen previously. He now started doing things that made him happy and connected to his discipline while maintain his mental wellbeing.

George's story reflects the illusive nature of the career landscape, be it academia or others. It reminds us again of the personal nature of this endeavour of negotiating a career future, and the site of the self, located within this context. It becomes evident that even some of the most clearly defined pathways, despite constant resilience on the part of the individual, do not stay their course. In a follow up e-mail conversation outside of the research period, I found that George left academia after his Masters, seeing it as the best decision for his mental health. It begs the question: why should it be that the individual be resilient in the face of perpetual turbulence, or rather insecurity? This is a question that must be asked as we consider the futures of young people.

### 6.6.3 Summary of George's trajectory



**Figure 16 George's trajectory**

In **Figure 16**, the first interview with George indicates a positive reflection on his achievements thus far and their contribution to a potential future. Thinking of a job was irrelevant as he considered staying on in academia. By the second interview, George had an offer for a place on a Masters programme in Scotland. In the third interview, he had moved to Scotland and was beginning to look around for some work such as tutoring. In the final interview with George, he was considering potential PhD opportunities for him to apply for and take up alongside managing his mental health.

The resilience that George exhibited reflects an unexpected demand placed on students to navigate a perpetually changing landscape. Reflexivity in everyday life becomes more and more important to the individual. Although it is indeed conditioned by one's habitus within the HE field in which these actions take place, various other factors are incorporated into negotiating the HE landscape despite them sometimes seeming contradictory. From a theoretical perspective, it is for this reason that Archer (2012) defends that there is a move to a meta-reflexive mode of Internal Conversations for decision making as individuals make their way through Late Modernity. George reflects a meta-reflexive mode of decision-making. He wanted to continue into academia because of a moral position he held regarding the position of knowledge in society. However, when faced with personal challenges, he needed to re-evaluate his situation and moved away from academia, despite the potentially straightforward future of academia, which was an idea eventually shattered for George.

## 6.7 Louise

Louise is from the South of England, *from just outside London* (Interview 1). It was important for her to go to university as she would be the first in her family to do so, and her parents were supportive of her despite not being acquainted with the process. Yorkshire Urban enabled her to potentially pursue a Joint Honours programme, though she eventually decided to study only Physics.

*Louise: I really enjoyed maths and I really enjoyed physics, and physics kind of did both whereas maths was kind of just one track. So I just took it because it merged my two favourite subjects into one really.*

*Me: What made it your favourite subject?*

*Louise: I just like how logical it is. There's always reasoning behind it. [Interview 1]*

Louise is perhaps the best example of the ideal student from an employability skills development perspective. She engaged with a range of provisions and activities at university including workshops on study and writing skills, visited the career centre for information about her CV, and also frequently visited the job database offered to students and made a list of the graduate schemes she was interested in that she chanced across. She actively prepared herself for work.

*Louise: [...] I know I really want to get a job. So putting the time in now is probably going to help me get one. Instead of being like "aw, it doesn't matter". Cause there's a lot of people that are on the grad schemes now, or like who aren't on grad schemes now but have graduated and they're just like "I didn't do anything" or... It's not hard to spend like an hour and even just looking through something. [Interview 1]*

In addition, Louise engaged with extra-curricular sport activities, had a social life, and also worked part-time in a bar during her degree. Although her grades were lower than she had hoped for, missing a 2.1 by just a few points, she was content with her achievement.

For Louise, a main concern is being in a stagnant role, with little advancement for her career. She formulates her projects and practices in response to this. Louise's story is one of determination and resilience in response to unexpected hurdles. She attempted to make sense of the contradictions around her, but did not ponder too much on them.

### 6.7.1 Personal career expectations

Louise has a plan. Meticulously taking into account various different opportunities and factors that could prove helpful, she made her way through university. Louise constructed her transition as one of skills-development and constant engagement with graduate prospects to improve chances of getting a job. Her degree discipline does not necessarily play a role in how she sees her career future.

*Me: So what do you hope to get from your Physics degree?*

*Louise: A 2.1. [both laugh] Hopefully. Um, just, I dunno. Just skills you can take forward more than anything. Because obviously I don't really want to go to a physics related job afterwards. So the actual science that I've learnt might not be of relevance but the skills I've learnt from how I've been taught it will.*

*Me: If you could...*

*Louise: Like where we did lab I learnt to analyse a lot of data to get a conclusion. So I could take that skill, I've learnt - how to take a lot of data to draw a single conclusion - forward into a different job that might not necessarily involve science. But I'll have the skillset to do it, as opposed to having the knowledge of it, the background of it, necessarily. [Interview 1]*

Knowing that she wanted a non-science job potentially influenced how and why Louise engaged with various services as she prepared for the world of work. A desire to play to her numerical skills strength as well as a preference for a sociable work environment helped Louise decide on a preferred career path to begin on.

*Louise: I'd like to go into insurance. Or banking. Just cause they're all, they're still quite numerical heavy which is what I enjoy about physics but sometimes I find it quite hard to understand the science. [softly] so I think if I take out the science a little bit [and normal now] I'd be a little better at it. So, and they're both quite social environments which I kind of enjoy. [Interview 1]*

It was something she had decided on much earlier in her life, and she did not see it as conflicting with her degree subject choice, something that will be returned to in the next section.

*Louise: I always knew that I was going to go to something finance-y really ever since I was little so that was never really a thing to be honest, I always knew it and it just sort of happened.*

*Me: Can I ask how come?*

*Louise: I don't know, just ever since I was five I used to play banks and stuff so I just always knew that I was going to do something in finance or related obviously insurance isn't finance directly but in certain areas a similar to field to it so... [Interview 4]*

She felt that insurance would suit her preference for an organised, routinised life alongside personal enjoyment.

Over time, not getting the graduate roles she applied for despite all the preparation and early application led Louise to move on from thinking about a graduate scheme specifically, to just getting a job in her preferred industry through any means at her disposal. She also became ready, if not eager, to graduate.

*Louise: At the moment one of my family friends works in a business and she's put my CV through to their HR department, and I've had a couple of chats with them about potential positions that might come up for June and I have signed up to 4 job agencies to London so when I graduate I'm*

*going to set up meetings with them to find jobs as quickly as possible in June. Yeah, [nothing] other than that. Cause the grad schemes, all of them kind of went and I didn't get on to any of them, so, just trying straight for a job instead of a grad scheme.*

*Me: Did you want the grad scheme?*

*Louise: I'm not really fussed to be fair, I would kind of like a break from studying for a while to be honest [laughs]. I haven't- don't have a year I've not done exams since I was 13, so to have a break would be quite nice. Um, and I don't really mind working my way up, on like just a normal career path instead of skipping ahead but not really being that ahead of everyone with a grad scheme. Yeah, I'm happy to do it. [Interview 2]*

Although with a hint of disappointment, Louise continued to prepare for a job following graduation, which she eventually got through one of the agencies with which she signed up in London. It was an entry-level job and she was excited and positive about the potential learning and career progress that could come of it, despite it being a little different from what she was hoping.

*Me: Was it what you were expecting?*

*Louise: Um to an extent yes, but- I've gone into the industry that I want to go into but not this specific role at the moment. Cause I want to do insurance and I wanna become a broker, but I'm obviously on claims at the moment which is kind of like the back office sort of stuff, which I think is actually really good because although it's not doing exactly what I want to do, I'm actually learning the other side of what I want to do if that makes sense?*

*[...]*

*Me: Oh wow. So it's- how would you compare it to what you expect of a graduate job?*

*Louise: I do think comparatively to a graduate job I would not be given as much of responsibility as I'm being given at the moment, like I would just be given really small things to be doing. Which is not a lot. Whereas this is very hands-on at the moment, the things I'm doing is broker chasing so trying to set up all the schedules which took me like 2 days to do, like getting all the information together and collating it all on different spreadsheets for different brokers and then I e-mail them out. On behalf of the company, and now it's me dealing with brokers there are people that get back to me like can you do this can you do that. Here's the information on this here's the information on that. And it's me having to do it. So there's it kind of being a sort-of practice thing is like real life, is like actually business that's making the company money. [Interview 3]*

Here, we see Louise distinguishing her progress in terms of career performance compared to being on a graduate scheme. It reveals Louise's understanding of graduate schemes as training and not being taken seriously rather than actual work, and being given responsibility.

At the start of her job, Louise was given a considerable amount of work to do. She experienced a sense of independence in acquainting herself with the work, which she enjoyed. Keeping her thoughts on career progression in mind, she felt this was the

right direction for her. However, 6 months into the job, her opinion had changed and she was ready to move on from her current employer.

*Louise: It's in the same industry but for a better company because they don't have enough work for me, they keep telling me to slow down when I'm doing stuff because they haven't got enough for me to do and the prospects there are pretty naff so I decided to move.*

*Me: I remember when we spoke before they seemed to have put a lot onto you.*

*Louise: No it turns out what they actually wanted me to do wasn't a lot at all, they made it out that I was going to get loads of projects and then I ended up with three but once the main work is done you just don't really do much so I haven't really been doing much for the last probably couple of months.*

*Me: Oh no, so what did that make you feel and why did you decide to change?*

*Louise: Well I decided that I didn't want to have a stagnant career because they don't really do training; it's lacklustre, no one really wants to be there, if you speak to different people in the company they don't really want to be there so there's kind of that vibe throughout the whole office [Interview 4]*

Louise was dissatisfied with her situation and took the decision to move. Although Louise believes she is able to work in an entry-level job, it appears that her qualifications have made her expect something more. Louise's expectations of this job were somewhat amiss, arguably built up through the way employability and accessing a job is portrayed. For example, media coverage pathologises graduates as lacking in some way or the other. This ranges from suggestions that employers are largely unhappy with graduates not showing a willingness to work, as covered by *The Telegraph* as 'Employers unhappy with graduates attitude to work' (Carr, 2017), or *The Independent* attempting to ask 'Are graduates ready for work' (Thorne, 2015), though coming to no conclusion. The ambiguity continues in *The Guardian*, wondering if students get appropriate careers advice, as 'Too many graduates are mismatched to their jobs' (Steed, 2018).

It is evident from Louise's story that the preparation prescribed does not always come to fruition. This raises an important point of criticism, highlighting a discrepancy in how young people construct their futures, and how policy and universities attempt to construct the futures of young people for them. It creates a false compulsion on the student towards a certain pathway. Instead, it appears that a massified HE system elicits a different rationalising of the uptake of a degree.

*Louise: [...] the opportunities they advertised in the department in the school are very limited, if you want to be a researcher or a teacher then they have a lot of support and they're there for you, if you want to do anything else they don't consider that which I think they need to adapt from because people like me that don't want to do it afterwards, don't*

*want to pursue it but studied it because they enjoyed it at the time and the don't really cater to that at all.*

*Me: So a lot of people seem to have the idea like you've just said that if you do Physics you want a Physics degree, what was the reason that you did, you said you enjoyed it but what was the motivation behind doing a degree?*

*Louise: I just always wanted one, that's the long and the short of it really, I have always invested in my education and that was one that I had always wanted to do and have, there's not really a lot of explanation behind it. [Interview 4]*

Up until this point we have reflected on how Louise perceives her own motivation towards a certain career path and how she negotiates barriers as she comes across them. It is evident that her central concern regarding her career path is having a stagnant career, which was something she identified right from the first time I spoke to her. However, alongside this, Louise alludes to another aspect of her experience: external pressures.

### **6.7.2 External pressures, or what do employers really want?**

Louise was aware that getting a job would be difficult, and thus felt that preparing for it by honing her skills and having the right attitude would help her overcome this situation. The reflexivity she practises appears to be centred around finding a solution immediately through evaluating her situation in relation to her career goal. However, there are some observations that Louise has made regarding this presented narrative of the graduate being the site of the problem, and therefore needing to improve. It appears that there is no equivalent (meta)morphosis demanded of the institutions surrounding her.

Louise therefore started with a resilient approach to accessing the job market.

*Louise: I got 2 job rejections today actually. Just like, oh you've not matched our job criteria. Which isn't a problem. But like, I think you can get so disheartened about it and then it just gets you and you're like "ah, well..." And there are all these jobs but they are so picky about how you get there that by the time you get there they've got too many spaces and not enough candidates. So it's like "well, what are you gonna do now?" can't fix it. [Interview 1]*

She picked herself up and repositioned her focus on entry-level jobs when all the graduate schemes she wanted were gone, and she was unsuccessful in all. Her resilience made her focus on the eagerness she had for beginning her career, as seen previously. As soon as she began looking for jobs, however, she found herself experiencing a different landscape than she expected. As it would appear, students and graduates are not prepared for the world of work to have a vocal bias positioned against them by employers. Louise tries to empathise with the concerns raised, though finds it hard to see past some contradictions.

*Louise: ...there's a lot of... um... like... like stigma around graduates in some industries because they just expect to go in and be able to like do this this and this. And... you see what I mean? It's like [graduates expect to] go straight into something where they've got all the money and all the responsibility without actually having to work for it?*

*[...]*

*Louise: So there is quite- it was hard to get a job that I- it wasn't hard to get the job that I've got, but I had to overcome because obviously I am going for entry-level jobs which a lot of people are like 'why', and to explain it to them, they got it, but I think they felt that a graduate would have this arrogant attitude and wouldn't be happy to start at the bottom and just work up.*

*Me: Yeah. So I have 2 questions for you. First of all how do you feel about that attitude personally?*

*Louise: I think it's quite an unfair attitude, I think at the end of the day it's down to- it's different personalities, so it's just like they've tarred everyone with the same brush, oh you're a graduate you're going to have this attitude, blah blah blah blah blah. When really you don't, if that makes sense.*

*Me: Yeah*

*Louise: It's just- I find it quite hard for someone- I'm a person; I don't have that attitude I don't care if I have to work from the bottom to get to the place I want to be, if it takes me like a year or so longer, I don't expect things to be handed to me on a plate because I've got a degree, and I think that a lot of people see that attitude from graduates because it is common, but I just think it's quite hard when they're interviewing you can get turned down straight away, like one of the jobs I went in for I got turned down for because I was over-qualified. And it's like but you just [selected] me for the degree, like you looked at that 'cause I had a degree and not because you looked at me as an individual.*

*[Interview 3]*

Perhaps her patience wore slightly thin. If we refer to Louise's complaint previously regarding not being given sufficient work and leaving as a result, we become aware that there is perhaps something else at play here. Louise realised that this entry level job demands less from her than she had anticipated. She expected progression, and to be able to prove herself as one capable of taking on more demanding tasks. This role arguably does not permit progression, as some jobs are expected to lack immediate opportunities for progression. Given the fast-paced globalisation and technological advancement in the world, a stagnant career does not only imply a financial concern, but also the future potential of the individual. If this pace does not mirror capacity to grasp knowledge, it can have negative implications for the individual. It is a product of the gamification of the work environment which is an expectation imposed on young people. When they perform in accordance with it, not only do the employers find themselves disturbed, but the individual is also disconcerted with this lack of congruence of the expectations imposed on them and

their expectations of themselves within the mythical meritocracy and competitive job market.

Perhaps slightly annoyed by the question being repeatedly asked by me regarding whether anything she learnt at university was of use for her career, Louise reflected...

*Louise: Probably not that much; more, I suppose, the ambition that uni gave me that made me not want to stay where I am if that makes sense. maybe not the actual educational part of it but the drive and the motivation to do stuff probably made me move a lot earlier than someone who maybe hadn't had that sort of experience would have. [Interview 4]*

In fact, she felt that there was some amount of judgment allocated to her degree and thereby to her. Albeit a positive stereotype, Louise found herself uncomfortable with it. One could speculate that this was because of her own choice to not pursue a career associated with her degree.

*Louise: When they find out obviously I'm from physics they assume that you've got a certain skill set and mentality like you're good with numbers and analysis and precision of data which is obviously quite accurate but that's probably about it; their attitude towards it- a lot of people, like the interviewer at my last interview looked at my A Levels and looked at my degree and was like oh, your obviously very bright but they just assume that, the attitude isn't really that, people are just a bit astounded by it which I still find it baffling because all degrees are just equally as hard. [Interview 4]*

This conflicted with how she saw herself, and arguably with her experience. When asked how she felt about having one of the most employable degree, she reiterated that it did not make a difference to her as she had to put in a lot of effort to get her current job. The notion that having an employable degree as begetting a job felt ill-founded to Louise. It builds up to a concern with how employability of degrees is understood. Louise experienced it as somewhat taking away her personhood or assumed that she had none and was reducible to her degree, taking away her agency as a reflexive being.

In fact, Louise was able to exercise her reflexivity in other decisions she made, including regarding gender in the roles she considered. This was a response to a question I asked about the influence of gender, owing to the imbalance of women in science.

*Louise: I was looking at banking and insurance, and I would prefer insurance because there's just more of a gender equality in it, whereas banking, like traders and brokers in banking, they're like, it's uh, a lot more male-dominant environment. I was reading, do- I had a video interview with this company, but in the end I didn't do it cause it was like, they had really bad write-ups of like bullying as stuff, so I didn't finish it, but also like I read one review that went "if you're a woman and you wanna go into this business, you won't go anywhere". She was like "it's very..."- So I think it does to an extent, but also no. 'Cause I went to an all-girls school*

*to then a boy-dominant course. So my gender views don't really matter.  
[laughs] [Interview 2]*

The lived experience of such a label apparently does influence decision-making in this example to move away from certain roles, rather than hamper the individual's perception of their own capacities. Finally, however, there is one label that Louise can shed, and she is happy about it.

*Me: So what does it mean to be a graduate now that you are one?*

*Louise: Erm... I don't really know to be honest. It's quite daunting. I feel like it's just a label that's a bit unnecessary when you're done if that makes sense, it's kind of like when you're going through uni you get branded a student and obviously has a lot of stigma attached to it, like 'oh you must be lazy and you eat really badly', etc, etc, um.. but no I think once you start a job you kind of- you lose- especially maybe not with the grad scheme, but obviously I've started just an ordinary job like standard sort of thing, so I kind of belong to that system of labels almost I think, and now I'm just seen as a worker instead of a graduate. Which is quite nice.*

*Me: How so?*

*Louise: Just I think because you get involved in- it's just- I dunno I feel like graduate is just the stop gap between when you graduate and when you get a job, whether that will be a grad scheme cause you kind of adopt a new title so you go from graduate to the title of your job, so obviously mine will be 'technician', so you get a new label which I think is quite nice.*

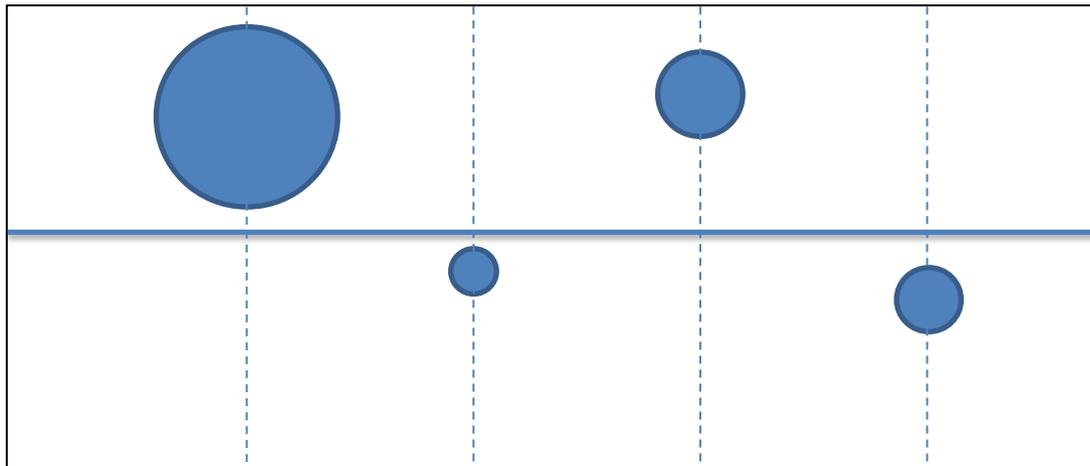
*Me: Do you like your new label?*

*Louise: Yeah, I do. I prefer it. [Interview 3]*

This perhaps sums up Louise's entire experience. There appears to be a division between university and work for the individual, and begs a question: why then are these two seemingly different worlds artificially linked from a policy perspective? Louise entered the job market with an attitude of humility, taking the initiative to develop her capacities while at university. However, both the provision at university and the world of work seemed to have let her down, in that they appeared to reveal to her biases that they hold about her and others in her position.

Despite her engagement with a variety of employability-enhancement opportunities, and having one of the most employable degrees from a Russell Group University, Louise did not have a smooth transition into work. She is not the ideal STEM graduate in that she did not aim to bridge a STEM skills gap. Yet, in Louise's case we notice the importance of the individual in making decisions about their lives and how they are perceived. This returns us to the problem being one of agential capacity, and the tendency of employability to be constructed in a paternalistic, potentially patronising way. Louise has paved her own way through the labour market landscape, and at times her degree has been the barrier to accessing the job she wanted.

### 6.7.3 Summary of Louise's trajectory



**Figure 17 Louise's trajectory**

Louise is first seen as engrossed in preparing for work, with numerous applications and interviews. Her motivation came from the pressure of needing to apply in time and prove that she was capable of performing certain roles. This external presentation was coupled by her personal motivation to have a job that suited her skill set and that could enable her progress through work. This appears to be an autonomous mode of reflexivity. By the second meeting, she had not achieved her goal. This was because she was not offered the jobs for which she had been interviewed. Here, parental expectations and arguable class position led her to instead try to get whatever job she could, including through the use of her personal social network. These were entry-level jobs, which seemed to be her only hope at that point. In the third interview Louise had returned home following her degree and immediately took up an entry-level job in insurance brokering for an SME. Although not her first option, she was happy to start working. She was at home, and put effort into performing her job well. Here, again, it appears that Louise's autonomous reflexivity is prominent. After 6 months, in the final interview, Louise felt her job was too stagnant and so she left it after having another suitable job lined up. Through an analysis of how her decisions were made, Louise predominantly was an Autonomous Reflexive.

## 6.8 Zachery

Zachery was an international student with an Arabic background undertaking his degree in Physics. As an international student, there were ways in which his experience was different from his peers, alongside some similarities. Zachery loved Mathematics and loves how Physics uses it.

*Zachery: [W]hen I discovered how math - how physics basically uses math I started getting more into it, getting interested in it. This was when I was in HS. I still found the curriculum boring. Like, very boring. So I learnt the main curriculum and I learnt the other physics on the side just because it was interesting. And so when it came to uni first year I still found some of it to be a bit iffy, as in not really that interesting. But as soon as I went onto it in Second and Third year that's when the physics became harder. People started to be like "this is not physics anymore", but that's the physics that I actually found out as a kid. So I was overjoyed more or less. I was like "wait, I actually love this". So as many people sort of, usually people would finish on their third year degree because they've had enough of it or they've realised they want to do something else. I on the other hand would have loved if I had the means to do it [more], but I'll just continue it later on. [Interview 1]*

Zachery picked the UK for his degree as he felt the relatively slow nature of the degree, compared to undertaking a degree in France which was his other option, would suit his desire to learn at an appropriate pace, rather than 'cramming' information. Within the UK, although he had applied to the University of Cambridge and been accepted, which he found prestigious, he felt that the costs for International students was unreasonably high, and that a degree there would leave him burnt out on completion. The way in which Yorkshire Urban was described to him during an International Recruitment fair in his country of residence prior to moving to the UK made him feel like it would be an ideal atmosphere in a nice-sounding town; he was not disappointed.

Zachery's approach to making decisions is one of prevention and planning. He identifies concerns, and formulates multiple projects for the same. These played out in terms of aligning an interest in physics with his future career. The other concern was external to him, relating to formal border-crossing.

### **6.8.1 Knowledge, a job and a career**

Zachery's experience of his degree was a knowledge, cultural and personal independence-enhancing experience, through which he kept a positive outlook alongside taking precautions and facing limitations. Balancing a passion for the discipline with having a job and a career defined an Internal Conversation for Zachery. Zachery's decisions were strategic. Although his father, working in International Economics, suggested that Zachery take a degree in Engineering owing to the skill shortage, Zachery chose a degree in physics as he felt it would give him access to a range of other disciplines when it came to a Masters programme, and subsequently would give him access to an array of job prospects. This was important to Zachery as alongside his need to get a job, he was also interested in undertaking a PhD, but was aware of the need for financial stability to support him while undertaking it. He hopes eventually to land his *dream job*.

*Me: So then, what does getting the PhD mean to you?*

*Zachery: For me it just means that I can finally do my dream job, I can become a lecturer and do nothing else or mainly do research, but yeah.*

*Me: Yeah, yeah, yeah. So, it's more about taking it slow until you can, like you said, get your dream job?*

*Zachery: Because for me in the end the job that pays a lot of money, I could do that, I don't mind, but I would only do that for a certain number of years to the point to which I can't take it anymore. So, if I want to do something that I know that 20, 30, 40 years after, I still am enjoying it. So, taking it slow, why not? [Interview 4]*

For Zachery, Physics was something he was passionate about, as highlighted previously. However, he aimed to have a practical view of what was possible to achieve his goal, and the extent to which he could push the boundaries to balance the two. In this way, a career for Zachery related to disciplinary passion, but in order to achieve it, he needed to have a job which related in part to aspects of his disciplinary passion. In this way, the notion of employability skills supports Zachery's job and eventual career, but it exists as a result of constraints being negotiated.

Disciplinary passion does not always beget a relevant job and therefore may not relate to a desired career trajectory. One of Zachery's concerns in thinking of what he would do in the future lay in this conundrum. Although he was passionate about Physics, he felt that in order to eventually undertake a PhD, he would need to accumulate sufficient funds to support him through the process. This made him consider Engineering for his Masters and a job following it, but intends to keep his options open.

*Zachery: 'Cause I was like engineering is nice, but the methods they use, the approximates they use, I'm fine with something more rigorous but at the same time, can't really find that in the real world where it's a good job so I was like might as well do computational fluid dynamics. It looks nice. Where can it be applied? Aeronautical engineering. That was my main reason for taking it.*

*Me: 'Cause you were looking for the job or more...*

*Zachery: Nah, it's more like I was looking which one has a more, I know this is a bit arrogant but, which one has a more interesting side to it. I was like aeronautical engineering seems way more interesting than mechanical engineering... I just don't feel I can do this. So I just took aeronautical engineering instead.*

*Me: So you want to move towards engineering, but not stay in physics, or do you still...*

*Zachery: Oh I still do. I'm thinking like hopefully as soon as I get my masters, start working. And when I work, I'll start saving up at the same time. Depending on the opportunity. [...] But what I'm hoping to do, like if I see that engineering doesn't cut it for me, like don't enjoy it, I might always go to finance 'cause I do enjoy maths in that regard. [...] I've already applied for a few summer internships. [Interview 1]*

This commitment to the discipline was repeated in each interview, with an interim plan in place to help him reach his future goal. In order to boost his chances of success in this plan, Zachery aimed to get some experience through summer internships, which was attached to a concern that will be returned to in the next section. Nevertheless, undertaking a Masters was more than just a quenching of a thirst for knowledge, but was an up-skilling of sorts for Zachery while responding to a known gap in the job market.

*Zachery: I could have switched to the MPhys, but I find that as much as having a Physics degree is really helpful, I find that having two degrees would be far more helpful in diverse subjects...not that diverse but they are still diverse subjects. [...] I mean I pretty much knew that after a while I will have to, I think I am probably exaggerating mainly because of my experience and my father mainly who told me what to do, but it is far more easier with a degree in engineering to get other jobs. It opens up way more jobs in some of the sectors I want to work in as opposed to Physics.*

*Me: A degree?*

*Zachery: In engineering.*

*Me: Okay.*

*Zachery: Mainly because one of the two options I want to do if I were to work in science I would love to work for R&D in a big aircraft company if possible or R&D in the literal sense more or less would be better; by having two degrees I would be far better equipped at dealing with a lot of stuff given that the degree I am doing, even though the degree name is not theoretical Physics I have done a lot of theoretical modules that I pretty much do follow all the same things.[...] At the same time having a degree in engineering would help me with the more practical side. [...] So, I have figured better to get the best of both. [Interview 2]*

Having a Masters along with a Bachelors was strategic for Zachery from a skills perspective as he could then present himself for interpretation by a future employer, having both theoretical and practical knowledge achieved to a high degree, as it were. In fact, Zachery graduated with a First, the highest grade. Of this he said,

*Zachery: It's always nice to have a First-class bachelors when you're applying for a job. I mean a Masters is good, but a First-class bachelors would pretty much show that you have initiative or you'd pretty much be able to do the work.*

*Me: Yeah, and that's thinking about a job.*

*Zachery: Yeah. That's thinking about a job. Other than that to me in the end the degree is just a piece of paper that says 'you graduated with this'. [Interview 3]*

Here we see that the symbolic value of the degree is merely for presentation purposes. This is because Zachery separates grading from learning.

*Zachery: The only thing I had an issue with in Physics is the exams are 100%, so that was big, like by Third Year that was the norm for most modules, or some of them I had 80-20, but with these modules [in his Masters] the exam only accounts for 60% of it. So it's more of the daily*

*work that you do that counts. Which I honestly think is alright because the problem with exams is I had a few friends who messed it up purely because the exams were 100% so it was either pass or fail, try to get a good grade. It was just one chance, whilst if we had- could work on something on a day-to-day basis like a whole year, the only reason you would fail it would purely be because you just didn't do the whole work during the whole year, so in a sense it's easier but at the same time- I wouldn't say easier - it gives you more chance but at the same time it is harder. [Interview 3]*

Nevertheless, it is important for Zachery to get a job that can financially support his future plan. He had not found jobs in Physics that could do this, however it was not for a lack of trying. Instead, from experience, he had learnt that it was necessary for him to have a back-up plan, or plans, at all times to ensure his main goal was not at threat. In this sense, Zachery's concerns existed in terms of barriers to his goal. The barriers were addressed by formulating projects to address this which are referred to as 'plans' here. However, all projects are in play at once to an extent, within a hierarchy of options, and when the time comes, one is selected for the main response to serve as practice.

*Zachery: I always have to think ahead. You kind of have to because nothing is permanent so might as well just have an idea of something like five years. Usually I have a five-year plan, if it doesn't pan out at least I tweak it here and there because you never know. but yeah, my plan is to apply for jobs in the aerospace industry because that is why I chose a degree as an aerospace engineer. If that doesn't work out I'll still have applications at banks or I could use the skills that I learn as an aerospace engineer and then use them in banks. And then a plan C is, I don't know if that's going to happen but if my dissertation goes well I might be able to apply for a PhD in America because I'll have a recommendation from my supervisor, he knows some head of school of mathematics there so let's just all hope it goes well, you never know. but yeah, I like keeping a lot of my options open because as long as I have a lot of options, I don't feel like I have to do something because that's the only thing I have. Because I almost got shortlisted once for a job I really, really wanted but I didn't get through it purely because I wasn't a US citizen. I was applying for NASA, and they told me you needed to be a US citizen to do it. I was, okay, well I couldn't do it, so now I'm trying to keep all of my options open so even if some of them don't pan out, I still have a lot of the options that I want to do.*

*Me: What about things like CERN did you not look at those schemes?*

*Zachery: I don't think I can because they're for mainly European students and the thing is, I really like physics, I really do, I'm still going to practice it even after I do whatever I do but I just don't want to do it right away because as nice as jobs offered by physics are, I'd rather get something a bit extra purely because I want to get back and do a PhD but I'd rather do it feeling more comfortable because if I don't get the funding {laughs} that's a whole new other perspective. So, who knows. [Interview 4]*

It is through experience that Zachery has learned how to position himself within the context of the job landscape and the limitations placed on him. He nonetheless

continues to strive to achieve the same goal, despite the different routes it may require. Zachery has internalised an aspect of his reality about which he has no control, and takes a thorough approach to constructing his future. It is not just so that he can pursue his passion for physics to land his 'dream job', but is also accompanied by another aspect of himself – his status as an international student.

### **6.8.2 Science with Border-barriers**

The other side to Zachery's story is his status as an international student from what can be considered the Global South, which for legal purposes makes finding a job and making decisions more complex than for his British counterparts. Although universities continue to push both employability and internationalisation agenda, the two do not appear to interact in a meaningful manner. This is evident in the limitations placed on Zachery in undertaking, for example, a Year in Industry wherein he would need a different visa and would eventually put his final year of study in jeopardy. His experience also reflects an irony about scientific research and knowledge positioned as 'global'. Instead, scientific knowledge exists with borders as barriers, which I suggest as a play on the idea of Science without Borders which is a collaborative endeavour to share scientific knowledge across borders amongst the developing world.

The first concern associated with being international is getting a visa for work which is different from a study visa. International students find themselves at the cusp on legality soon after completing their studies as they attempt to find a job. In the UK, prior to 2012, students were given a year extra visa time to look for a job. This was reduced to four months, and continues to be a contentious issue for UK government. Zachery constructs this as potentially being in conflict with his goal, but for which he has developed contingency plans.

*Me: Do you think there might be any barriers you may face in the future-*

*Zachery: Well there is one. [...] The one big barrier that I have is just when I finish my degree, when I'm in the process of finishing the Masters, if I get it hopefully, I need to start applying for jobs there [note: there is used to imply a future place, which is in the UK]. Because if I get the jobs there, that all is well, I can renew my visa in the UK. Which would take literally no time, almost no time whatsoever, than if I were to do it overseas. Because if I were to do it overseas, it wouldn't be a Tier 4 visa, it would be Tier 1 or 2, Tier 2 actually. [Interview 1]*

As the time to move onto a Masters programme drew near, Zachery explained why applying for a visa would be more complicated if done overseas.

*Zachery: I probably won't do a summer application this year mainly because of some personal issues... Well not personal issues but mainly due the fact that I am an international student. I have to renew my visa; it's a lengthy and long process meaning I won't have as much free time as I thought I would have during summer so I was forced to not accept*

*the internship, but hopefully I will reapply and see what I can do about it next year because I am really hoping to at least do a summer internship before, well, not before my degree ends but as soon as the year would end next year, hopefully I would have a summer internship so I would some work experience to build on when applying. [Interview 2]*

Entering the country eventually was more of an issue than Zachery anticipated. When applying for his visa to return for his Masters programme, he found that the programme was one that required additional security checks for international students. This process of reapplying for a visa weighed on the time available to apply for jobs, and even to start his Masters programme. In our final meeting, while on his MSc programme, Zachery was preparing for job interviews and continued to write job applications. He was already aware of the need to get a company willing to sponsor a visa, and so focused on larger corporations for the same. An additional barrier for Zachery to reach his goal is a simple demand and supply situation; there are many international applicants for few positions. In Zachery's case, this will result in him prolonging his uptake of his desired career. It makes a STEM role optional with a focus on achieving financial stability in order to eventually get to the desired career.

*Me: Okay and would you be a physicist?*

*Zachery: I would be a physicist, not in the near future, but hopefully- because to me, as I said, I really do enjoy Physics in the sense where I wouldn't mind not doing it as a job for a while as long as I get to it at some point in my life. I wouldn't mind. So even if I were to work as an engineer, or as I said before, in finance, I wouldn't mind working a few years there and then getting back to Physics because I would be a bit more financially secure than I am right now which would help me to find opportunities mainly because a lot of the opportunities for a PhD position- only a few percentage of them are to international students and even the ones for international students are highly competitive so I am being realistic here by saying even if I were to apply for a PhD I would still have to take a lot into consideration which at this stage of my life I would just know that I can't, pretty much. So, it is a compromise of some sorts. [Interview 2]*

Zachery is alluding to a need for financial stability through other means when undertaking his PhD. He therefore feels that making the most of his youth by working in any industry that pays well and uses his skills is time well spent. Yet opportunities for people from outside of the UK and EU do not come easy, and Zachery is well aware and even weary of it. Keeping with his nature to anticipate various problems, Zachery kept himself equipped by being informed about the relevant legal structure.

*Me: That is a lot of work! How have you found out about information on legal structures?*

*Zachery: I read the actual financial law. So I literally read the High Court's financial UK law. Just looked into it. I know this might seem quite boring for some people, but I'd like to take my precautions, 'cause you never know what will happen. So I was reading that, the penal code, and criminal law as well. Cause you never know what you could do that could end up being wrong! So might as well just... [laugh]. Oh and corporate*

*law as well. Cause a lot of international students get back-stabbed over some petty stuff. [Interview 1]*

This is not something his British counterparts would have to consider. Here, we see that Zachery as an international student does not merely focus on a job or career future. He has to consider his personal wellbeing and protection against foul play. Zachery did not access the careers services available as he felt they would not be equipped to support international students: instead, he opted to rely on family for support in formulating a career.

There is another element of bordering that takes place in Zachery's experience. This is the case of borders being created when within the country. It is an experience of cultural difference not just on the part of Zachery as being introduced to a new culture, but also his British counterparts being introduced to his culture. Zachery saw this as a potentially positive experience, and used it thus. He spoke about learning about a new culture in positive terms.

*Zachery: Coming to the UK was a completely fresh experience for me. I never experienced such a thing. So I was pretty much the only international student for my year. When I mean international student I mean truly international student in my course. Because most international students here they either cluster up in, they just form a group and just start being outside of everyone. I was like nah, these people are going to be in my course for 3 years might as well socialise with them. So I got to know few people here there. By the end of First Year, pretty much got to know around three quarters of the people in my class so it was pretty alright. Then everything smoothed out afterwards. [Interview 1]*

There were also some aspects of university that Zachery shared with his British friends who had moved away from home, though Zachery did not have some of the quick-fix options that they did. However, he viewed this as a positive learning experience that enabled him to be independent. Overall, he saw his experience as positive.

*Zachery: I do enjoy making friends with everyone because I like to see how everyone's perspective in life is because the one thing I've noticed is that you will never find two people who will have the same circumstances, even if they lived nearby each other, [...] this is an international hub, you just get to see perspectives from everyone's point, so it's really interesting. [Interview 4]*

At the same time, there were glaring differences. The British academic calendar and national holidays are organised to work around Christian festivals which may come as a surprise to those outside of the British context owing to the portrayal of the UK as secular and ethnically diverse. Sharing cultural practices therefore became an important part of overcoming this isolation Zachery could have faced.

*Zachery: Yeah, for me it was simple, I don't know if I'm too friendly with some people but I will just impose myself and be like, 'So look, I have dinner coming for Eid/Id, I'm going to be making couscous, you've never*

*eaten couscous so you probably would want to come'. And they're like, 'What's Eid/Id?', and I was like, 'Just come for the food, man, just come for the food'. [Laughs] So, yeah.*

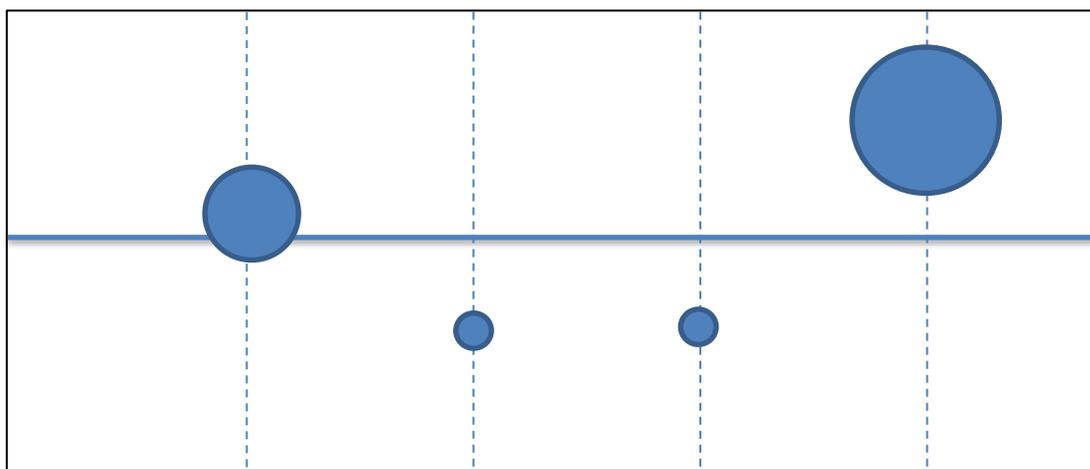
*Me: Oh God, did people actually ask you what Eid/Id was?*

*Zachery: Yeah, people asked me what Eid/Id was. I was like, do you know what, at this point I'll just wait until I bring all of you and I'm just going to do a small intro about what it was and then we're going to eat, that's it. [Interview 4]*

Zachery's extra-curricular activities on campus became a way of sharing his cultural knowledge, including supporting Arabic studies learners. This experience also enabled him to hone his own cultural skills, such as through practicing recipes from his mother.

Zachery's story runs along two parallel lines, one of knowing what he is passionate about, and trying to negotiate different routes to ensuring that he gets to it in the future. Alongside he must manage his legal status as he aims to seek opportunities outside of his home location. He must therefore work within the context of complex, every-changing rules. What stands out the most from Zachery's story is his need to be not just one, but several steps ahead of the systems that could potentially constrain him. His method of deciding and preparing for work is reflected by no other participant and raises questions regarding the ethics of universities continuing to pursue an internationalisation agenda without considering the hardships that may be encountered by virtue of residing in these countries. That is, there is little critical reflection on existing provision. Nevertheless, Zachery does not let this stop him from constructing his dream along his desired lines. His determination forces him to take a flexible approach to achieving his goal.

### 6.8.3 Summary of Zachery's trajectory



**Figure 18 Zachery's trajectory**

Zachery's trajectory is presented in **Figure 18**, beginning with a positive view of a plan for the future including a potential work placement. In the next meeting, parts of

the plan had to be forfeited due to the extensive visa processing requirements for his Masters programme. This continued in the next meeting, where Zachery was waiting for his visa despite the Masters programme starting. When we last spoke, Zachery was applying for jobs in Engineering with a contingency plan for jobs in finance, all while enjoying his application-focused Masters.

Although Zachery's story represents one of meta-reflexivity – he had an end-goal of doing a PhD and getting into academia, defined by his passion for physics – the structural barriers he came up against forced him to be an Autonomous reflexive. His passion for his discipline was dominant, and he did not let that waiver. However, in order to get to where he wanted, there were certain sacrifices he needed to make that no other participant appeared to have. His experience of being a student and then a graduate therefore differed from others too. It is beyond the scope of this thesis to enquire further into the experiences of international students, however, it is integral that this problem be highlighted.

## Chapter 7 Discussion of Findings

This chapter analyses the stories presented in **Chapter 6** and how they influence knowledge on student transitions from a science degree. Here, I consider aspects that emerged either as building on existing literature, or those that stand in stark contrast to present work in this area. No attempts at generalising the responses was made. Instead, this chapter string together aspects through a thematic presentation which continues to retain the primacy of individual stories in this research was used to bind together the lives and trajectories previously described.

In this chapter, three broad themes that emerged as empirical contributions to knowledge, through the use of the particular theoretical framework described in **Chapter 3**, are discussed, namely:

1. Critique of formal routes to employment,
2. The distinct nature of transitioning from a science degree, and
3. Emotional geography and wellbeing in decision-making.

Through a critique of formal routes to employment the disconnect between lived reality on one hand and policy and employer expectations on the other are displayed. This will be presented in relation to the mismanagement of expectations of the employer and future employee, revealing discrepancies in how job roles are formulated; the role of personal motivation and lifestyle preferences in influencing decision-making, and the role of informal ties in pathways to employment.

Next, transitioning from a science degree is highlighted as a different trajectory, particularly because of young persons' reliance on what I term a 'science ego' that supports physics students as they transition from their degree, which critiques the science identity and science capital perspectives in understanding decision-making. This is coupled with young science students and those around them treating the degree itself as making themselves employable. I then consider how the process of decision-making was undertaken over time in order to create a graduate sense of self (as discussed in **section 3.1.3**).

Finally, in considering factors of influence beyond discipline and degree, an argument for a better understanding of the role of geography and wellbeing in decision-making about youth futures is presented. Here, I conceptualise the university as a heterotopia in order to understand the vicissitudes of transitioning from a degree.

### 7.1 Critique of formal routes to employment

Universities offer services and resources that students may engage with to improve their chances of becoming employable graduates. For example, Higher Education

Career Guidance has its own practical and theoretical realm (Burke and Christie, 2018). This includes pedagogical and management-inspired ways of supporting students. Typically, it has included what Pitan (2016) characterised as Employability Development Opportunities such as the use of events, information sessions, curriculum-embedded activities and virtual platforms, among other resources. By engaging with these resources, students are made aware of the various ways in which they can prepare themselves for the work environment. Here, the responsibility is placed on the individual student to access these resources. Graduate employability is constructed in relation to getting a job and arguably keeping it, pointing to the capacities needed to acquire a high-skilled job.

The stories presented in **Chapter 6** reveal disconnections between employer expectations and employability on one hand and how young people engage with them on the other. Identifying the Internal Conversations (IC) implied highlighting aspects that were key to participants as described by them. These main concerns were identified by analysing participants' negotiation of their future trajectories as a process over time. Although there were some difficulties in strictly categorising peoples as one or another type of reflexive, understanding the process as dialectical enabled the consideration of concerns as internal or external, while still being an interaction of both. The use of Margaret Archer's theses offers a crucial way of understanding reality and what can be known of it, and indeed how it can be known. This drastically altered the way in which social action of the participants could be understood. From the case stories, it is evident that the individuals, alongside constraints and enablements, present themselves as having a high amount of selectivity in terms of the options presented to them. They potentially *become* this way during the course of their degree or due to other experiences prior to this (as also suggested by Archer, 2012). This implies two key things: 1. Modes of reflexivity changing over time indicates that the nature of decision-making changes and can be sporadic. As highlighted in **section 3.1.1**, the student is often understood as unidimensional to suit agenda outside of them. This does not account for the personally negotiated understandings people have of themselves and their surroundings. Yet young people appear to often negotiate and re-negotiate their thoughts about their future through moments of experience, such as the prolonged impact of Jane's mental health that made her renegotiate a slower pace for her life, or Isaac's somewhat frantic applying for jobs having learnt of the near-approaching closing dates during a compulsory module. 2. Simultaneously, even in instances where family and other aspects (like class, gender and race) influence decision-making, the young person is still enacting a selective form of reflexivity. Where they do not, the persons are more constrained with reference to their future. Therefore universities need to move away from functioning as 'bubbles' and work as structures

that enable interaction with wider populations (Reay et al., 2009; Holton, 2015). In **section 7.3** I will develop an argument for this.

It must be stressed that IC and reflexivity are not only of the individual alone. It is very much a dialectical process. The cases all present the process as one of negotiation. In this section, I discuss some of the problems with not acknowledging this dialectical aspect of decision-making which results in the understanding of youth futures from a degree to be lacking. Contrary to policy expectations, individuals make decisions according to their evaluation of the complex world around them including social, economic and political aspects. Simultaneously, people do not appear to be defined by their social disadvantage, often presented in work using Bourdieu to reveal inequalities in HE. However, they are influenced by these inequalities, as acknowledged through the theoretical positioning of this research. It reveals a different perspective in how the landscape of employment and career futures is evaluated and engaged with by young people transitioning from HE. Archer's suggestion that in the present age people are more Autonomous or Meta-reflexive reflexives owing to changes in society rings true of the trajectories of these young people. The stories reveal a range of instances of balances as well as discrepancies between how young people and the wider structures view employability as experienced or expected to be 'developed'. In so doing, it is possible to then critique what can be known about this relationship. These discrepancies will be highlighted in this section. It stresses the role of the subjective nature of decision-making about employment and career futures, which has been often ignored in work on employability, as highlighted in **Chapter 2** and **Chapter 3**.

The first discrepancy lies in understanding the level of skills developed by the individual completing their degree, and the extent to which they utilise these skills in a practical work environment. When certain skills are expected from the individual student, the expectations of the university and employers appear to be at odds with each other. As the university is the first point of contact, their priorities include equipping students with a level of knowledge that enables them to continue onto further education or utilise that knowledge in the work environment. Some skills can be developed further and tested through work itself, supporting the case for employability to also be developed outside of the formal curriculum (Andrews and Higson, 2008; O'Leary, 2012; Cunningham and Gallacher, 2013). The findings were consistent with the literature in this regard. Participants were encouraged by their degree potentially enabling them to put into practice their various capacities, including, but not limited to, ability to grasp new technical knowledge, build on programming skills, learn new programmes and programming language, work with numbers, and so on. However, simultaneously, each degree equips students with

advanced skill sets and knowledge, raising questions regarding potential misunderstanding of the purpose of employing a graduate as opposed to anyone else, since underemployment of graduates continues to be an issue (Green and Henseke, 2016; Burke, 2017). For example, this was particularly evident in Louise's story when she found herself bored by her work and eventually realised that she was employed because she had a degree – almost like an add-on or bonus value – rather than because she could work at an advanced pace.

In massified HE, with so many graduates versus non-graduates from which to select, employers potentially hedge their bets on individuals who they need to train less. Participants reported being aware of the highly competitive landscape for graduate jobs, but also narrated a need for a degree in order to get a desired job. Here, we see that the employer holds all the power – or so the narrative of employability suggests. It creates what Lauder et al. (2012) call the War for Talent. Very simply put: employers' expectations of graduates are high, and while young people do aim to develop themselves to the required standards, based on the findings in this research, it appears that employers may not require such rigorously trained persons for the jobs on offer, reiterating existing research (Smith and Gorard, 2011; Smith and White, 2019). Simultaneously, young peoples' thoughts about the future reflect the uncertainty of their job experience and may leave jobs that are in line with their qualifications. For example, Tony acknowledged the precarity of the job landscape and articulated it as a positive situation since he was sceptical to be 'tied down' to one job anyway (Du Bois-Reymond, 1998). Six months into their graduate jobs, Ash and Isaac, both on graduate schemes, felt their next step was a change in the type of employer, moving from a larger to a smaller company. Ash in particular linked this to the uncertainty of being offered a contract on completion of the graduate scheme, seeing as there were a number of people on the scheme itself. Isaac also hinted at a similar concern, justifying the contemplation of a different future trajectory as personal fulfilment and satisfaction. In these cases, they could not rely on the employer for: (a) long term employment, and/or (b) job satisfaction. Job precarity has been repeatedly highlighted as detrimental to society and young people in recent times (Hardgrove et al., 2015; Lewchuk, 2017), and perhaps what motivates young people to focus on themselves, independent of a job, when deciding their futures. This reflects Archer's (2012) suggestion of Meta-Reflexivity as becoming an increasingly common mode of Internal Conversations under late modernity, which as presented in **Chapter 3** implies a positive relation with family relational goods and high selectivity in making decisions. For instance, Tony quit his job after a year to pursue a religious programme which draws attention to the under-explored nature of lifestyle in decision-making.

On that note, the second shortcoming relates to a failure to acknowledge alternate routes from a degree. Viewing the degree as preparing students primarily for the world of work has an impact on those who want to continue in Higher Education. George found himself underprepared to transition onto a Masters programme from his degree as the level of education delivered was higher than he anticipated. Similarly, Zachery faced problems with rote-learning for exams on his degree. This was not reflected in his Masters programme which focused on knowledge, and was more conducive to his learning. This is a pedagogical question, a solution to which can solve both sets of problems. The critical pedagogy of Paulo Freire (1970), for example, encouraged re-thinking the purpose of knowledge and its development by the individual. It rejects rote-learning to fulfil exam criteria and encourages a long-term acquisition of knowledge. Such an approach can also support the management of expectations of both students and employers through a better comprehension of the role of knowledge in society and its relevance (or not) to various situations.

From the case stories, it appears that personal motivation and lifestyle choice are more important in employment and career futures than it appears to be recognised in the wider literature. This problem was explored in **Chapter 3, section 3.1.1**, through a consideration of the way students are understood in unidimensional ways. Students do not view university solely as a means to an economic end, but seek to relate their selves and personalities to what they do in terms of their futures (Tomlinson, 2016). Oftentimes, people consider their citizenry, lifestyle and future selves as important and not limited to careers, as is reflected in some cases. Therefore, although people live individualised lives, within the constraints and enablement of the existing capitalist system potentially reproducing the power relations in society, they nonetheless transform and are transformed by the world around them. These contradictions surface in many ways. For instance, in engaging with 'other' activities – co-curricular and extra-curricular – students could potentially help influence their graduate prospects (as in Tomlinson, 2008). Yet participants did not undertake them to primarily influence their employment prospects as a majority of studies tend to assume, but rather as part of getting to know more people, or as an opportunity to try new activities or hobbies. The impact on employability was secondary, or a bonus. Rather than harnessing this to improve notions of citizenship, to which HE arguably ought to contribute, the time spent at university is misunderstood as a manufacturing warehouse, with various appendages of employment-readiness being attached to students. This stands in contrast to the perspective promoted through the Bologna Process, which Sin and Neave (2016) suggests throws the onus of gaining employment on the individual. A change in how students and their decisions are perceived will be beneficial in improving HE.

A third related shortcoming is the belief that formality is the sole route to 'developing' an employable person. This shields away the social and cultural capitals at play when privilege is reproduced in society, a concern raised by a range of research on the unequal landscape of higher education using Pierre Bourdieu's conceptual framework of the forms of capitals (Reay, 2001; Reay et al., 2010; Allen et al., 2013; Kalfa and Taksa, 2015; Brown et al., 2016). It also denies a common practice of social life, informal interactions. Employability thus appears to assume only formal provision as enabling employment.

When asked about service provision including the use of careers advice, all but two participants revealed that they had not gone to the career advice centre as they thought it would not be of use to them. The reasons for not going were primarily based on student pre-conceptions of what the service offered, or because they felt they were able to find information on their own or through other sources such as through personal tutors and social networks. For example, the belief that there would be no discipline-specific help, or that job offers presented would only relate to opportunities local to the location of the university hindered Tony from approaching any career advisor. Instead, he eventually got offered a job through his friend's family. Zachery felt that as an international student, the careers centre would not be equipped to support him. He also felt that his father was better equipped to know his needs and have a good understanding of the employment landscape. Louise had been to the careers centre for drop-in sessions, but did not seek help from the departmental advisor as she assumed they would try to urge her in the direction of a STEM job. She asked someone from her family to disseminate her CV at relevant workplaces, and eventually signed up with a recruitment agency through which she got her job. Jane and George did not go to the centre as they were set on doing Masters programmes. However, Jane's parents spoke to their social network when she was interested in knowing about a health-related option. Ash went to the centre as he needed to address a formality in his Industrial Placement, and was able to seek help from housemates when it came to finding a job (reflected in Holton, 2017). Isaac received the necessary feedback through other employability activities including career fairs and a compulsory employability module. He also held a family-related part-time job at a pub. Alice had taken a year off, but noted that her father and a cousin provided the necessary information to support her.

All participants preferred to get careers advice and support from family and friends. This is well-documented in the literature as social capital, raising questions regarding inequalities being reproduced in instances of those not having such networks (Crozier et al., 2008; Dunn, 2014; Clarke, 2017). However, this research shows that the use of social networks for employment crosses class groups. Though it is not the focus

of this research, the use of informal paths or social ties needs to be understood for employability, as well as how they are tapped into. This also needs to be approached through other lenses of analysis than Bourdieu. Simultaneously, universities must seriously consider the implications of this in their practice of admitting more students from socially disadvantaged backgrounds, who may not have strong social networks, and how universities can help build/foster these networks from a social justice perspective. This has been repeatedly argued for in the literature, an overview of which was provided in **Chapter 2**.

Through this section I reiterate that 'developing employability' is paradoxical as it simultaneously expects the individual to be responsible for their employment while also responding to structural demands, all through which the individual is either understood as completely autonomous and devoid of structural constraints and enablements, or is perpetually bound by them and lacking agency. Additional problems arise with graduates are viewed as mere economic beings – perhaps a symptom of Human Capital Theory thinking. Instead, the social nature of personal motivators and a combination of formal and informal routes to futures must be considered simultaneously rather than as different and unrelated.

## **7.2 Transitioning from a science degree**

Following on from the previous critiques of employability, in this section I draw together the relationship that the individuals expressed having with their degree discipline, physics. I will start by considering the role of physics knowledge and skills in supporting the process of transitioning from a degree. Here, I develop the use of the term 'science ego' to explain the role of science in this process. Following on from this, I explore why individuals see the degree as employability, finding that the degree and university experience is seen as a broader experience. Finally, I consider how people may transition from a degree and develop a graduate sense of self.

### **7.2.1 Reliance on Science Ego**

In **Chapter 2**, I argued that the neoliberal knowledge economy relies on a workforce trained in the STEM disciplines. I reflected on the funding allocated to different disciplinary remits and related this to the notion of the STEM skills gap. I also highlighted concerns about whether this so-called gap exists. In **Chapter 3**, I laid out the notion of a STEM graduate in relation to the employability agenda, revealing the economic gain from undertaking such a degree. I presented the notions of science capital and science identity in respectively enabling transitions to a degree and sustaining this to transition to a science job. Here I raised questions regarding whether young people undertake jobs in industries they are logically thought to

transition into. Although young people would ‘aspire’ to STEM careers through the proxy of education, they do not necessarily go on to undertake STEM jobs.

In this section, I attempt to draw on the notions of science identity and capital in relation to transitioning to a career as a STEM graduate. The participants tended to narrate their decision to undertake STEM in terms of their being suited to it along with having a good teacher, being put into a high stream or experience of the discipline particularly at A-levels for British students. An example of the quotes from participants can be found in **Table 8**. All this is reflective of the science capital developed by Archer and team (2015), of which science identity too is a contributing factor.

**Table 8 Choosing physics as a degree**

Person	Quote	Reason summary
Ash	<i>That's always been something I've been good at and enjoyed so, when I was in A-levels and I chose Maths, Physics and French as my A2 subjects. And then my Physics teacher, I really enjoyed lessons with him and just his style of teaching and he, I guess he kind of inspired me to go into physics so I was like yeah</i>	Enjoyment; good teacher
Alice	<i>I think a lot of influence was on my teachers. I had really good teachers and they were really enthusiastic, and they had a more personal relationship with me than maybe the other ones as in they actually seemed to care more about it [...] And I was thinking essay subjects, I think, I just can't, I can't really do that, it's not really my forte. Whereas Maths has always been my forte. But Physics is more like applied Maths, its more interesting.</i>	Good teacher, played to strengths
George	<i>Ever since I was probably about 8 or 9 I wanted to go into science of some sort. Um so when I got to A levels I found that I really enjoyed Physics much more than of the other sciences and um I you know I did a lot better in physics than in biology or chemistry, and the maths side of things</i>	Long-held opinion, experience at A-levels
Jane	<i>Actually I decided at college that I wanted to do Physics. Before that I didn't really like it. Actually I really hated it. At school it was just um.. Not taught very well. It was quite boring, and then I took it up in college, for some strange reason, and I had a really, really good teacher. 'Cause he was really passionate and stuff.</i>	Good teacher

In addition to their perceptions of their ability, science was normalised for most participants through their parental profession. For example, the most evident science capital-based reproduction was from Jane whose father was an Engineer. The encouragement (almost expectation) from her father to undertake a mathematical-based trajectory was reiterated a number of times, including a direct admittance,

*Jane: I mean possibly just my- to study physics just that I was quite good at Maths, and also that my dad's an Engineer and things, so he wanted me to be an engineer for forever. Um, so I think that maybe swayed me towards science at least, yeah. [Interview 1]*

This also took the form of hints from her reflection on her father’s expectations

*Jane: I don't want to like disappoint them either. My dad especially cause I think my dad has high expectations of me. He wanted me to be an engineer and stuff which I never wanted to do cause he's an engineer. I don't want to disappoint them. [Interview 2]*

It also included the inadvertent playing down of importance of STEM careers that are non-mathematical. In comparison to her sister undertaking a Nursing profession (mentioned in Interview 3), it appeared that there was a different expectation and interest from her father; maths was somehow more important, and meant that the individual was more intelligent. This may suggest that the sciences themselves have different hierarchical positioning.

*Jane: I think I'm very lucky to have great parents. My dad likes to hear about physics as well. They're just very interested. Even my sisters, they're always like "Oh Jane's the clever one, she does Maths" and I'm like [giggles] I get embarrassed and stuff. I dunno, yeah. They're just really supportive. My mum gets really excited about my future career and she starts like looking up jobs for me and things. I'm like stop. [laughs] [Interview 1]*

Amongst others, Isaac's step-father worked in construction, mother a nurse and he went on to do engineering; George's mother was a school teacher and he went on to study further; Zachery's mother was head of a STEM-based research division at a university in his parent's location while his father was an economic policy expert. Zachery kept his options open as either engineering or finance. Alice's mother was an accountant who had a natural science degree and would help Alice with maths. Those who stood out were Ash, Louise and Tony. Ash's father was an agriculturalist, but Ash did not want to get into that career and wanted to 'get out of that rut' (Interview 1). He opted for finance instead. Louise did not mention any relationship with science in her family, and so I cannot infer much from this. She did reveal that her parents did not understand much about university applications, though they were very encouraging of her being the first in the family to pursue HE. They were more concerned with her getting a job immediately. Tony did not speak about having any relationship with science within his family either, but he was encouraged by the experiences of his friends to consider an ICT career.

Through their stories, the science identity, or the relationship that each had with science, was particularly evident in terms of the individuals choosing to do their degree in physics. Each had a personal story about their uptake of science, and physics in particular. However, as they continued through their degree and subsequently to work or other post-graduation destinations, it became evident that this disciplinary-related identity did not always go further than the university programme. When asked whether they were physicists, most felt they had done enough studying to be a physicist in a sense, but all concurred that a physicist is someone who has a doctorate in the field or has taken up work relating to the discipline. None associated with a physics identity beyond having a degree in it.

For those who held on to their science identity, it appeared that this could interact with other aspects of the self and influence the individual's decisions for their future.

For example, echoing some of the literature on science identity, Alice felt that gender no longer was as a barrier for scientists; instead, they can negotiate the work landscape to suit their desires (Brickhouse and Potter, 2001; Carlone and Johnson, 2007; Calabrese Barton et al., 2013). This is presented in Alice’s case story. Here, we see that the identity developed from having done a physics degree took primacy in Alice’s thoughts about her accessing work. Yet, even Alice, who performed exceptionally well in her degree and wanted to peruse a career as a physics teacher in the long run (10 year plan), was more preoccupied with earning money in her immediate future and considered a banking/finance role (2 year plan). Perhaps Alice’s situation is closest to the notion of science capital. Alice has not lost her aim to do science education. She has merely put it on hold while she does other things, and so she knows that she will return to it. As a degree discipline, it was seen as a means to not just a job end, but also for personal fulfilment and prestige. In relation to their future, it could act as a source of stability. For most of the participants, science capital and science identity enabled them to arrive at this point of undertaking a physics degree. Physics did equip the individual with a skillset that would stand them in good stead for a job of their choice. However, once they began their degree, the situation changed. Some no longer felt associated with science, and their experiences at university changed their initial thoughts about their future. Thus far, the situation is represented in **Table 9**.

**Table 9 Science identity and capital in decisions over time**

		Time and progression from education to work					
Concept and uptake		School	A-levels	University	Further Education	Job	Career
Science Identity	C*						
	E*						
Science capital	C						
	E						
* C = Continued with science; E= Exited science (even if temporarily)							

The lenses of science identity and capital proved to be somewhat limited for understanding decision-making amongst science graduates about their future paths, especially by those who did not envisage a future in science. Although science capital includes “*Symbolic Knowledge About the Transferability of Science in the Labor [sic] Market*” (Archer et al., 2015, p.930), the action that enabled the individual to transition appears to be different to merely a ‘capital’, which they all possessed and used if they continued in science. In some instances, their realities were fractured (Bradley and Devadason, 2008) by the job landscape.

A problem also emerged with science capital wherein the theoretical framing of this research somewhat stands in opposition to the framework adopted by Louise Archer's work. This thesis adopts Margaret Archer's internal conversations and the reflexive imperative which is explicitly critical of Bourdieu's notions of habitus and field (Archer, 2010b), which is used to develop the concept of science capital. This concept is rejected on the basis that it has the potential to view situations as deterministic (Archer, 2007, pp.55–58). Instead, given the ever-changing nature of the job landscape, the individual is influenced by their surroundings (the structures) as well as their own disposition (socialisation and the personal). It is a relational process. This departure from the use of science capital also is a disjuncture in relation to the point in life at which the concept of science capital perhaps begins to take a backseat. Instead, Margaret Archer's proposal of a constant process of reflexivity is more relevant to the transitioning from a degree, and the mode that people adopt for their decision-making incorporates – and has the potential to critique – constraints and enablements of people in the social world.

These limitations in the use of the two concepts to understand decision-making post-graduation calls for an attempt to re-conceptualise the mobilisation of a science degree to influence graduate futures. I wish to suggest that the presence of a 'science ego' is what bridges the gap between young physics students transitioning to their employment or career futures on graduating. Perhaps the crux of the argument of this thesis is that on their own science identity and science capital cannot be necessarily linked to a job or career decision. However, it does facilitate this process in some instances, as described previously. Despite the high symbolic and exchange value of science in society (Bøe et al., 2011; Archer et al., 2012), young people do not always construct their futures in terms of this exchange. Instead, science ego is a combination, in part, of science capital and science identity once they are mobilised beyond education or science-related work. Going further and in keeping with the theoretical framework, the science ego is also one which acknowledges the role of the structure in this process of decision-making. It requires that:

1. External, structural cues be incorporated into thought process; and
2. Internal views be authenticated via outside structures.

This process is cyclical for each new internal conversation. From the stories, it was evident that there was an inter-play between the structures and the individual. For example, Zachery displayed dedication to his discipline when he spoke about realising what he liked about it and his being considered strange because of his passion for it. Additionally, he saw the increasing levels of difficulty within the discipline as a test of how much one truly loves it. He hoped to, in the future, return to academia to undertake a PhD. However, for the immediate future, Zachery

prioritised getting any job, for which he identified Engineering and finance-related roles. He also felt that this would eventually enable him to do a physics PhD. As explained in his story in **Chapter 6**, Zachery came up against strong structurally placed barriers. Meanwhile, Ash found himself shying away from a potential science job because he became disillusioned with it after struggling with course content in Year 2. He also appeared to be more concerned about not returning to the life he knew in his rural hometown which he felt lacked 'passion' (Interview 3). Instead, he opted to use his skills to support his future progression into work that did not relate to science in a direct sense.

The science degree is taken-for-granted as supporting any future trajectory that uses some of the skills developed as part of their degree. In this sense, the employability agenda in HE has been successful. It has transformed the ways in which young people construct and present themselves. They not only felt a sense of superiority in terms of hierarchical positioning of degrees 'most employable', but they were often also proved correct by employers. Tony's experience in particular demonstrates this interplay of external cues (structure) and internal views (actor, agency).

*Tony: from what I've gathered the opportunities are... it's got more opportunities than a lot of degrees I think. Which is probably why I have taken the arrogant stance that I have and don't really have to have an option at the moment and haven't applied anywhere, but I think that hasn't impacted it just because I can see- just because there are so many options available I haven't made quite so much effort [as] if I was on a.. Don't want to be rude, but a less employable degree.*

*Me: What's a... Please don't feel you- I'm not going to be offended.*

*Tony: I don't know what your degree is in*

*Me: Good.*

*Tony: Well, I mean stereotypically its things like humanities [...] If it's what you want to do its fine but your employability options are more limited than something like Physics I think. [Interview 1]*

What appears to be the case is that when transitioning from a degree, science capital and identity tend to be relatively passive, with each respectively deployed either through a savvy understanding of the implications of science in society, or at an opportune moment that is not necessarily premeditated. This points to a division of sorts between degree discipline and employment, where although the degree may give one access to highly-paid jobs, possessing a science identity does not always explain the final decisions made.

Within the literature, this potential for young people to change their thoughts against or in favour of a science future based on this interplay of structure and actor has been documented, though through the use of the notion of 'choice' (Cleaves, 2005; Holmegaard, 2015). However, these studies too are difficult to compare to the

participants in this thesis owing to their focus on younger people and children. This situation of people not complying with what is expected of them from a policy perspective is reflective of Archer's (2012) suggestion that communicative reflexivity in decision-making is reducing in importance. That is, even if people possess 'family relational goods' – here arguably through the notion of science capital – people are more selective of whether they adopt the suggestions made by significant others. At the most, they would incorporate it into their overall process of decision-making. Constructing this decision-making based on a relationship with science as a 'science ego' would help to make a link between how young people from science go on to employment and career futures in any role they wish.

Thus, the science ego is an important factor of influence for the individual when transitioning. A further point must be made here that the science ego is one which actively discriminates against other disciplines by mobilising its hierarchical position to achieve a successful future end. It differs from both science capital and science identity in this way as the latter two *may* endorse a hierarchy, but only in a relatively passive manner.

### **7.2.2 STEM Degree as employability**

Despite the differences in engaging with the employability agenda, all participants were aware of some of the ways in which employability can be influenced, and all of them felt that a main way was through the degree programme and qualification itself. Although all participants said they picked a subject based on what they liked and coincided with their own capacities, degree selection did still relate to how individuals thought of future prospects, though more so as a process of doing so. As Louise who went on to work in finance explained,

*Louise: It's how you know to get to that, learning to create links which is more beneficial. I get a lot of people "oh why'd you study physics" and I'm like "because I really enjoy it". I didn't want to waste my time [on a business degree]. [Interview 3]*

Louise separated the skills learnt from the degree discipline, the former being transferrable for work and the latter being something she enjoyed. Other participants also drew this link between their degree and employment by citing the breadth of the content of the degree as equipping them with skills and knowledge that were potentially applicable to a range of careers. For example, Alice and Tony who had contemplated going into work following their A-levels felt a degree would help them get their foot on the metaphorical career ladder and give them options regarding their future job ventures. This reinforces some students justifying undertaking a degree for economic reasons (Glover et al., 2002), but goes further to suggest that different

degrees are not just rewarded but also undertaken with a certain sense of pride and may not be immediately cashed in for a reward.

Participants also found encouragement in the reputation of physics in employability statistics and its academic nature – though this was less so when they transitioned. For example, Isaac and Zachery were explicit about their reason for selecting Physics strategically over other STEM disciplines. They saw physics as having ‘academic’ merit attached to the degree, and considered how their degree was perceived by potential employers, making them more desirable as they would have transferrable technological skills and knowledge. This is the science ego at play. Jane’s own thoughts about a career transformed over the years as she engaged with critical perspectives on globalisation and neoliberalism through an elective in political science. She had shifted from her initial thoughts of going into finance to wanting to use her degree discipline to do good in society. The discipline helped them transition to their next steps. These findings that students pick a ‘broad degree’ to equip them with some generic skills echo the existing literature, which simultaneously acknowledges the degree-specific nature of other skills (Andrews and Higson, 2008; Sarkar et al., 2016).

There are differences in what the individual perceives as having gained from a degree, which may not always be part of the curriculum. Another way in which the participating young people felt they were preparing for their futures was through activities outside of their degree. Most felt that participation in other activities and interests (such as clubs and societies, part time work, other experience) were important as something employers look for, echoing findings by Tomlinson (2008). This relates to ‘soft skills’ and appears to be an expectation placed on individuals accessing the job market by employers, rather than just specialised skills. Though, here it must be said that these young people did primarily participate in such activities for their own enjoyment, with it ‘looking good on your CV’ as a bonus. Louise, who did not want a science-related job, expected that the skills she would be able to display through doing a degree in physics and her engagement with extra-curricular activities and part-time work would stand her in good stead for a graduate job. However, Louise was unable to get a graduate job potentially because of her grades – she just missed a 2.1 and got a 2.2. She continued to shift jobs after graduating, in search of something fulfilling. Louise undertook part-time work for financial reasons to sustain a student life. Her story reveals problems in accessing jobs based on employer perceptions of young people with degrees. She began to feel that having the degree actually worked against her.

On the other hand, Isaac wanted and got a science-related job. His engagement with extracurricular activities were almost as much as Louise, and he too expressed

concern regarding the amount of activities young people were expected to engage with to prove their worth to employers. Yet, this active life is not reflected in the world of work. Employability through activities beyond the degree thus becomes an additional pressure placed on young people rather than them experiencing a sense of community and collective learning. Being at university is also competitive, and it becomes a contest from which some prefer to drop out. This takes Holmes' (2001; 2013a) argument forward that skills are not always understood in the same way by all stakeholders, particularly considering that..

*Despite the rhetoric surrounding the skills agenda, it is by no means clear that employers should want skills per se; rather, they want the graduates they recruit and employ to perform in desirable ways competently and effectively. It is the behaviour, or performance that is required. (Holmes, 2001, p.114)*

In fact, it would appear that the notion of the leaky pipeline, or the skills gap is a potentially limited understanding of the trajectories from a degree. It reflects an issue with how jobs are classified as some IT and finance jobs do need STEM-related skills. For example, when Tony narrated his role in a 'big data' firm, he spoke about the need to process large amounts of data. His basic skills in the processing language Python which he learnt at university were honed through on-the-job training. Similarly, Ash was working in the Finance sector, however, cyber forensics did need the numerical and objective perspective he developed through his degree.

Of all the participants, only Alice decided to take time off following graduation. The other participants undertook a straightforward move to work, education or to low-skilled work – albeit focusing on their eventual career. Overall, they all felt that their skills could be used in their work environment, but it was only Ash and Isaac who appeared to feel their skills coincided well with their job tasks and that they were learning something new, which is reflective of findings by Artess (2018) about graduates going to work in big companies, which was the case here too. Nevertheless, the importance of a degree – along with its appendages of co-curricular and extra-curricular activities – in getting a job was evident across participants in terms of their own perceptions as well as in their subsequent employment.

When they finally moved into the workplace however, the demand to over-perform in studies and in social activities, all while 'becoming adults', was not matched. The exceptions to this were George and Zachery who went on to do Masters programmes. Although none of the participants expected their work to be reflective of their time at university, the changes in routines and the built-up assertions of needing to work hard was met with disappointment as some became bored and looked for their own ways of challenging themselves at work. As explained previously, Tony (Interview 2), Isaac (Interview 1,4) and Louise (Interview 3, 4) had raised

concerns with employer expectations, all at different stages of the research process. This lack of clarity regarding what to expect could also explain a reliance on the science ego when thinking of their future employment. Evidently, the demands placed on young people seem to create a false sense of under-achievement and even self-blaming and blaming the education system. For example, Tony suggested that he would not be an ideal candidate for jobs, having no extra-curricular and work experience, but he hoped that the degree would be enough. Simultaneously, he felt that the expectations for him to prepare for a job while at university was unfair. This sentiment coincides with the conclusion reached by Cranmer (2006), wherein through their research, they remained sceptical about the potential of an individual to be ready for a specific job, instead encouraging the use of funds for employability to support more opportunities for employment-based training. This shortcoming of engaging with employability and trying to apply for a job while studying is what Tony felt would set him back.

What is more telling of the internalised nature of the employability agenda is that it was not entirely the case that Tony had no work experience. He had teaching experience, had volunteered in the scouts – a network with which he continued to be engaged – and he participated in different student societies (extra-curricular activities) at university. Tony was not convinced that he had sufficient experience to suit employer demands, yet he went on to get a job. At work, Tony found himself able to do his job at a very quick pace, with his employer often having little work for him. This appears to stand in contrast to what young people are told regarding preparing for the world of work and indeed in their very experience of undertaking a degree. Their experience is what Cartright (2015, p.17) raises in terms of precarious early employment after graduation, in which

*fierce competition for jobs, complex and arduous recruitment practices and the seemingly endless requirement to gain 'more experience' all playing a contributory factor in driving most of the participants towards temporary agency work.*

What makes Tony's story more intriguing is his gaining a job owing to his regional ties, i.e. as he was from the same place as his employers. As he wanted to return to his hometown, this was ideal. He was particularly struck by this ease of getting a job through a friend and felt it was important to highlight this serendipitous way in which he got it. In terms of decision-making, this appears to reflect Archer's (2012) proposition of the move away from Communicative reflexivity as the individual does not rely on the 'family relational good' to support social mobility. An external aspect which is internalised, and influencing of the Internal Conversation (Archer, 2007) indicates more of a meta-reflexivity in decision-making with a longing for home and a sense of self taking priority. Simultaneously, this hints at some of the unrecognised

paths to employment; those of informal ties. In the bigger picture, these intersect with social inequalities in British society, perpetuating class-based (Reay et al., 2001), ethno-racial and gendered intersectional inequalities in experience of transitions from HE (Bhopal, 2018). Rhetoric of social mobility works to entrench the myth of a meritocracy, which participants sometimes reproduced when asked about inequalities in HE.

In the end it does appear that science ego may well work to the disadvantage of those who do not comply with the expected 'pipeline' through which they are expected to flow. The science ego is one where the individual is given special attention and perceived as 'more capable' to develop a certain skill set. They perhaps get put onto a higher stream of study in school, and eventually reached university. However, it is recognised that university comes to an end and one is expected, and students expects of themselves, to transition to work. In the work landscape the examination system does not dictate one's worth.

The case stories of these young people reveal a tension between students/graduates and the portrayed image of employment and employers particularly in relation to the skills desired. Although there continue to be calls for better collaboration between employers and HE Institutes in practice, it often fails to incorporate students and young people in meaningful ways (Jackson, 2013; Kinash et al., 2016), and tend to centre employers (Artess, 2018), the result of which are poor conceptions of how young people construct their futures for themselves (also suggested by Allen et al., 2013). I have attempted to demonstrate that despite the formal provisions for employability development, young people do not always engage with or gain from these routes. In this instance, it can be explained in part by some young people seeing the degree itself as making them employable. This in turn is because the degree encapsulates a range of different aspects including knowledge building and personal learning, amongst other things. The problem lies in the fact that transitioning to a career is often wrongly understood as an impersonal, objective act.

### **7.2.3 The graduate sense of self**

It is difficult if not impossible to talk about young people preparing for work while at university and their subsequent graduating without acknowledging this as a point of transition in their lives. Graduate selves are constructed prior to as well as after the actual process. It is also not static. For this study, it is particularly important as all the participants had gone straight from school to university and were preparing themselves for their first full-time job. Ash was the only exception to this, having had a year of full-time experience through his Year in Industry, however, this too was within the confines of his degree programme. They all anticipated a skilled, graduate job future based on the indicators they received from those around them, the

university employability agenda included, rather than first-hand experience. Here, I must stress that many had some experience of working, though this was largely as unskilled work such as bar-work and cleaning. Instead, preparing for graduate life required, as George stressed, building up a CV with prestigious names and a range of experiences in order to procure a (rather insecure) skilled future. Therefore, as a result of this lack of first-hand experience of full-time skilled work, when talking about their future employment, participants often reproduced dominant narratives of the employability agenda in HE provision.

In **Chapter 3**, I raised some shortcomings worth bearing in mind regarding the graduate identity approach including a brief comment on the assumption that the individual must go on to undertake a graduate job. This may not always be the chosen path of the individual for reasons that can be outside the control of individuals or their personal decisions. This was particularly the case for the girl participants but can be seen as relevant to others. Louise tried hard to get a graduate job but could not; Alice postponed her search as she felt that although helping her get a job, a degree had taught her more about herself; finally, Jane went on to undertake entry-level jobs in order to recuperate from poor mental health which is increasingly a problem amongst young people, with the plan to ease into her employment trajectory at her own pace. In this vein, Zachery is unable to immediately transition to a graduate job because of his immigration status. Here, a graduate sense of self appears more important than an identity the latter of which appears to prioritise employers. From the previous section, we found that a graduate sense of self coupled with a science ego help these individuals and others overcome the precarious nature of the work environment.

When thinking of preparedness for the world of work, the participants unanimously felt they were ready to move on from their degree, even if the transition was somewhat daunting. Those who had not procured a job were confident in the reputation of physics for post-graduation job-acquisition, though not all wanted to undertake traditional physics related jobs, a trend observed as early as the 1960s (Hunter, 1981). The process of transitioning was immediate and it appeared that the young people were quick to slip into their new roles without pausing much to think about their status as a 'graduate' other than feeling personally accomplished by it. For George and Zachery, this transition was not so significant as they continued into further studies.

Perhaps the only person who had given it some thought based on her experiences of how people treated her was Louise. It is interesting to note that Louise identified her job title as 'technician' which tends to be a scientific role, though she repeatedly informed me that she would do nothing in science. Louise touches on a concern that is echoed as a tension between students/graduates and employers which has been

a theme running through this first section of the chapter. As we have seen in Louise's story in **Chapter 6, section 6.7.2**, navigating the employment landscape dispelled the myth of ease of access to the job market based on having a degree. What also stands out for the participants is confronting a new interpretation of reality through their changed life, having transitioned from what most narrated as a 'normal' trajectory, or a student life, to a graduate life where one looks for a skilled job that is potentially long term and full time. The ontological and epistemological framing of critical realism helps understand that prior to entering their degree, these young people had certain perceptions of their future and how life would be. The process of undergoing a degree confronts them with a new interpretation of reality, and what they perhaps once shared with others, they no longer found themselves doing, such as when Alice spoke about a good friend of hers from back home who did not do a degree and could not understand why Alice thought doing a degree was hard since she got 3 months of summer vacation. Similarly, Tony felt he would be getting a good lead by doing a degree, but realised during the process of his degree that he no longer felt that way. Instead, he attempted to rationalise his uptake of a degree as affording him a wider range of opportunities so that he would not get tied down to one job.

The stories revealed that young people placed high expectations on themselves to perform effectively at work. Tony appeared to have such a predicament, though it did not result in him changing jobs. For Isaac, getting onto an engineering-based job was a concern. He worked hard and over-time to ensure his knowledge of engineering improved swiftly. Isaac had also been considering his future after the graduate scheme, and as highlighted in his story, it appeared that there was never an end to making one's self relevant. This was a sentiment shared by Tony and Ash, all of whom were on graduate schemes. At this point, it is important to acknowledge the situation of work in society. Although young people may progress onto a graduate scheme, most schemes run for 2 years. Following this, the individual must be prepared for the uncertainty of either not being offered a contract, or must ask themselves whether they are willing to stay on with their current employment. Ash hoped that the skills he developed through working with a Multi-National Corporation (MNC) could be used in the future when working with smaller companies, which is how he saw his own future in contrast to his current position. Tony would be happy to continue to work with his company, but he was aware of the potential for redundancy in the event that his SME employer would sell their business, which they had done with a previous start-up. Isaac would get his chartership after 5 years and then decide whether to stay or take some time off. All three participants on graduate schemes were preparing for a different or a precarious future.

Post-graduation, the others were already living uncertain lives, at least for the moment. We are already aware that Louise faced difficulties regarding the under-utilisation of her capacities as a graduate which prompted her to leave her job in search of something more fulfilling. Alice knew that she did not want to stay in the London environment and had to think of a more stable future plan which she speculated could be in teaching. Jane wanted to take things slowly, but also wanted to ensure she achieved the satisfaction of choosing a career path that aligned with her ethical stance against big corporations. For Zachery, changes to immigration policy continued to make realising his dreams more and more difficult, though he persisted with his long-term goal. George had, by the final interview, become sceptical of a future in academia as it did not support his mental wellbeing, though he nonetheless was excited by potentially having such a career. The findings from the stories of my participants preparing for potential precarity are not dissimilar to those by Bradley and Devadson (2008), which in their case related to those 'temping' in industries like hospitality and gig economies, waiting for the next opportunity to come along. Uncertainty has become an internalised aspect of everyday life, and complies with Archer's (2012) argument that late modernity forces the individual to be perpetually reflexive. As a result, and given the continued labour market changes, it would be disingenuous to consider uptake of employment as solely determined by job availability. Instead, the individual plays an important part in this process. These young people had plans for their lives, which it would appear stood in contrast to the idea of a linear trajectory to work that HE and policy appears to assume.

To draw this section together, transitioning from a degree appears to include a combination of three factors that aid constructing the self in relation to the world of work. These are the degree discipline, deploying the rationale of a science ego, and the uncertainty of graduate life. These in turn are influenced by:

1. The conflict between demands and expectations of others (employers, university, family) and personal expectations for one's self
2. The temporality of any decision, requiring a consideration of concerns about existing projects and practices which relates to job precarity

It must be stressed again that work does not necessarily dominate life after graduation. This is often poorly understood in research on graduate futures. Furthermore, the onus placed on science graduates to respond to the skills gap also raises questions about how the futures of young people are imagined for them outside of their internal conversations.

#### **7.2.4 On the burden of responding to the STEM skills gap**

Although there are arguably more factors of influence, the reasons for there being a STEM skills gap collectively hinted through this random, self-selecting sample from

a group of distinctly different people within a relatively controlled environment of the university, are capable of contributing to a starting point from which demand and supply-related macro-level questions can begin to be answered, even if in part. For example, even in cases where we see individuals engaging with the 'correct' choice option expected of them, there is the potential for fall-out from a mainstream STEM workforce. Amongst the participants, Isaac expected to become an independent consultant after experiencing a big company. In Zachery's case, he was barred from an immediate transition to a graduate scheme because of visa restrictions despite a dedication to knowledge and the field. A third example is George who did not truly conform to the market-driven notion of using a STEM degree, but instead had an interest in knowledge advancement, underlined by a desire to contribute to society – at least until this research was undertaken.

The focus of the STEM skills gap fails to acknowledge that individuals incorporate elements of individual, social and legal citizenship in constructing their future while existing in everyday society. This is precisely where attempts to understand or build models of the future trajectories of young people – or anyone for that matter – falls short. There are arguably many more, but these are a good start. For those disinterested from the start, again there are a variety of reasons with an overarching simple reason of not seeing science as a career option. This included a need for being part of the workforce immediately after graduating, as in the case of Louise; a need for a year out for personal fulfilment for Alice; for losing interest in the discipline as in the case of Ash. Even in the grey space of selecting a job related to 'science', there is only the unity in a want to return home, Nevertheless, for Tony who does not see his job in a big data firm as relating to his degree, his choice for selection is sustained interest in a career path prior to doing a degree in addition to a desire to be located close to home, in the countryside. For Jane, a need for mental wellbeing returned her home and helped her realise her preference for a slower pace of transitioning to graduate-level science education and work, albeit in a slightly different field where she aims to use her potential future role to help society. All these instances reveal a personal factor at play, and accordingly, the theme of geography and wellbeing will be expanded on in **section 7.3** Finally, therefore, we see that merely engaging students in HE does not imply their receipt of a job of their choice on graduating, despite the seeming demand in the job landscape.

### **7.3 Emotional geography and wellbeing**

Through this section the subjective aspects of decision-making are foregrounded alongside some of the structural features. In the previous sections, engagement with employability activities and the role of discipline in influencing future trajectories were

explored. Here, the process of decision-making beyond employability provision and disciplinary remit will be presented. It reveals the role of geography and personal wellbeing in how young people make decisions about their futures. I start with the very movement of people for and from the degree as 'mobility'. I then consider aspects of personal and social wellbeing in how some individuals made decisions about their graduate futures which in turn are also related to geography. Finally, given the role of geography in the process of transitioning from a degree, I theoretically frame the university as a space, adopting Michel Foucault's idea of the heterotopia.

### 7.3.1 Mobility

Choosing a university is still related to a decision to 'move'. However, this

*"is not in most cases sought in reasons connected with academic study, and students certainly do not explain their choices in this way. It is the opportunities of freedom and independence associated with this move away from home that appeals to students. The social meaning of student mobility are interwoven not only into accounts of university experience given by students, but continue to govern HE recruitment strategies and the delivery both of academic courses and of pastoral support"*  
(Holdsworth, 2009, p.1861)

In this section I consider the concerns raised by participants relating to geography that subsequently incorporated mobility as a project and subsequent practice. That is, moving is an emotional and transformative decision, and relates to the space the individuals go on to inhabit. The movement associated with degree and work included:

1. Narration of why Yorkshire Urban was selected as a location for their degree – all participants had moved from home;
2. The experience of university life and its geographical location; and
3. Graduates' subsequent movements away from Yorkshire Urban – they all left.

When asked why they moved to this location, participants generally referred to their method of selecting a university. Most saw this as the 'obvious' route following their A-levels, reflecting the traditional route to education. When enquiring about their migration paths, it appeared that they all applied to university at a range of places, all away from their hometowns, based on the reputation of the university and what it offered, as well as the city location. The reasoning offered by one participant, Isaac, brings them all together:

*Isaac: The way I pick most things is, I just narrow down so, you've got every uni, and I'm like great, which ones? The non-polytechnic ones, then I cut down. Which ones do physics; cut down again. Which ones are like in the top half of unis that do physics, and narrow it down again. And I think I just whittle it down to about maybe 10. And then pick based on... erm... kind of location. A bit. [...] And I thought... I picked Yorkshire Urban because it's a city, and I've been to Yorkshire Urban before a few times.*

*And I like it. And I thought it is quite close to home, but not too close to home. And [the other in London] was kind of in the middle of nowhere a bit and... I picked location. [Interview 1]*

This reflects a range of ways of selecting a university based on:

1. University Ranking systems and reputation of selected institution;
2. Whether the subject is offered in the way the student hopes to learn it – for example one participant wanted to undertake a joint honours programme, and this institution was the only one that offered it in a comprehensive and structured way;
3. It not being a polytechnic – as students were more interested in theoretical aspects. This could also relate to (class and regional) biases against polytechnics (Moreau and Leathwood, 2006a);
4. Geography of the institution including location and structure of campus – some campuses spread across cities, others have a closed campus space – and facilities offered on campus and in the department;
5. An aim to seek enjoyment and revelry, creating what Chatterton (1999) called “exclusive geographies” structured to cater to the large number of students moving to study.

This is consistent with the literature on student geographical mobility for HE. When stating where they were from or where they considered home, none identified Yorkshire Urban. Three however had been previously acquainted with the city; one of Ash’s parents lived there for a short duration – and he lived there too – prior to returning to his childhood town in East Yorkshire, and Isaac and George had both been to Yorkshire Urban before albeit never lived there. They were all in the same situation of ‘belonging’ outside of the geography. This complies with the suggestion by Holdsworth (2009) that students continue to ‘go away’ to university. Staying here, however, seemed to be for a range of reasons, and it is important to acknowledge the emotional attachment felt to place.

*Louise: when I came and looked, despite changing my mind that I wanted to do straight physics, I literally just fell in love with Yorkshire Urban. I loved everything about it. When you think about university, it was my idea materialised into buildings so I was really, that's where [...] I knew that [this] was the right place for me because it just felt like homely when I came. You just know in yourself. [Interview 1]*

As for their next location, when I spoke to them in their final year, most had decided they would move by March of their year of graduation. The remaining two were waiting on receipt of Masters study offers.

This research sheds light on the integral role played by geography in decision-making as young people transition from a degree. Employability itself is rarely constructed along the lines of the personal, emotional relationship individuals have with constructing their own futures, let alone space and place. I use the terms ‘personal’

and 'emotional' to contrast them with the positivistic notions attached to getting a job as constructed through the STEM skills gap, for example, as discussed in previous sections of this chapter. I intend to re-focus employability using the lens of geographical experience as I combine (some of) the literature on mobility in youth transitions, career-futures, and student mobility to be able to make sense of the decision-making process of transitioning from a degree.

Geography is considered important for the individual in transitions from school to university (Patiniotis and Holdsworth, 2005; Holdsworth, 2009; Donnelly and Evans, 2016). The experience at university has largely focuses on class-based experiences (Reay, 2001; Reay et al., 2010; Brown et al., 2016), including the impact of attending local universities (Christie, 2007). There has also been research on university spaces such as accommodation, use of campus space for learning, socialising and career development such as careers services, and some relation to people and social networks existing within all mentioned geographies (Holton and Riley, 2013; Holton, 2017). There have also been theoretical developments on how student movement has a strong impact on geographical demographical composition through 'studentification' (Smith, 2009; Duke-Williams, 2009; Sage et al., 2012; Nakazawa, 2017) and impact on the local area economics, to the extent that Faggian and McCann (2009) refer to university locations as agglomerations, through which humans and their associated (knowledge) capital flows. Such spaces become exclusive, as forewarned by Chatterton (1999; 2010), drastically changing the physical built environment as well as the human relations within it as a result of the sprawl and playing out of student cultures. Barring this, a majority of the wider literature on student geographies and geographies of transition relate to international student flows (Prazeres, 2013; Beech, 2018), which I will not be considering here. All this literature shows that geography is important and formative in how students perceive the world and themselves within it.

In addition to moving to access university, mobility, or movement from one place to another, also manifests during the degree programme. For example, activities such as the Year Abroad might assume this. In the case of Zachery, it was evident that such an opportunity could not be accessed. It also assumes a cost that the student is willing to bear. Only two participants took up this opportunity and appeared to have gained greatly from it. Evidently, employability is also constructed along the lines of a spatial-flexible decision of going where opportunities might take one. Unless criticising it on inaccessibility due to social class (and its intersectional realities), mobility is assumed. In fact, Sheller and Urry (2006) characterised social changes in relation to mobility as a paradigmatic shift in Sociology, though this element is pre-dated in Human Geography. Thus, it is safe to say that the individual as well as the

built environment are transformed by the movement of people for the purpose of HE. However, despite all the work done on student geographies either prior to moving to university or for the duration of the programme, there continues to be little to nothing about the role of geography in decision-making when transitioning out of a degree, despite there being literature on people choosing to move to work. The case stories in **Chapter 6** wherein students narrate their transitions into and out of university reveals that this movement bears meaning in the individual's decision-making process. These stories are part of a wider flow of people. **Table 10** and **Figure 19** represent this phenomenon of student mobility from various parts of the country to and from Yorkshire and the Humber for HE and after it. This information is taken from the Higher Education Statistics Agency (HESA) reports based on data from the Destination of Leavers from Higher Education (DLHE) survey. It depicts the points of transition of populations to and from HE.

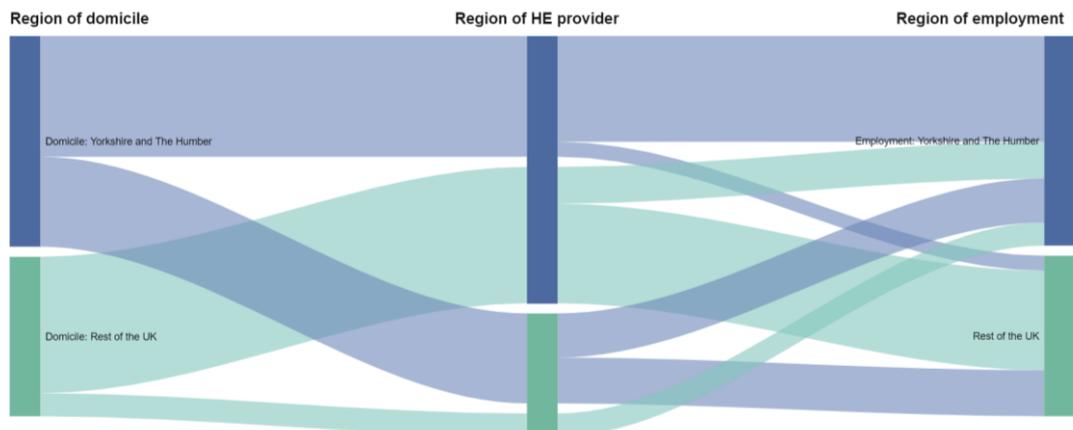
**Table 10 Flows from and to Yorkshire and the Humber for HE and employment;**  
**Source: HESA DLHE**

Domicile status	Movement trajectory	Number
<b>Yorkshire and The Humber</b>	Never moved: stayed for HE and employment	10075
	Left for HE	8570
	Returned after HE elsewhere	4200
	Left for work amongst those who stayed until HE	1425
	Left home for HE, stayed away for first employment	4370
<b>Rest of UK</b>	Moved to Yorkshire and the Humber for HE	13000
	Left after HE	9500
	Moved for degree and stayed for work too	3500
	Came to Yorkshire and the Humber for work after degree elsewhere	2195

Region: Yorkshire and the Humber ▾

**Figure 15 - UK domiciled higher education leavers in work in the UK by region of domicile, region of HE provider and region of employment**

2016/17



**Figure 19 Graphic of geography-based movement for university and work; source: HESA website, Statistical First Release SFR250**

Despite the phenomenon of moving following a degree seeming evident through the above data, the role of geography in decision-making about life transitions to a career future from a degree is severely unrecognised. Although the city or urban landscape was not the unit of analysis, the impact of geography emerged as important to understand experiences of transitioning to and from a degree.

As the stories revealed, deciding on a future location was an important part of the participants' consideration of their futures. It included practical reasons such as knowing that London had more finance-related jobs as in the case of Louise, and calculated decisions of not moving too far from family but not being too close either as in the case of Isaac, who was offered a job in his home town in addition to the one he eventually accepted in Greater Manchester. The idea of 'rural' had a different reaction from Tony in the South of England and Ash in the North of England. Tony was eager to return home, having had enough of living in a city. He preferred the countryside. On the other hand, Ash did not want to return to the countryside which he felt lacked ambition, despite his family primarily living there. For Ash, it symbolised taking a step backward due to the lack of opportunities. Perhaps Alice offers some important insight into this difference when suggesting that people tend to go to London if they live too far from it as they want to have 'the London experience'. For Jane, choosing to go home was an active attempt to put her health and wellbeing before picking a job. If it were merely for a job, she would have gone to London.

It is interesting to note that those whose home locations were in the Midlands (George) and Yorkshire (Isaac and Ash) did not return home, while the others returned home to the South to either work in their county (Tony, Alice, Jane), or were able to commute to London for their jobs (Louise, and Alice would follow in the future). Zachery also did not return home, but opted to do a Masters programme in Greater Manchester before applying for graduate schemes in the UK. He felt his status as a foreign national needed him to prove his capacity beyond that which the others did.

When deciding on their transitions from a degree, young people consider their emotional relationship with geographies and their expectations for themselves. This research focused on graduate prospects in terms of decision-making about employment and career futures. However, it is evident that in many cases, geography was a factor influencing graduate prospects. That means, it was not just about finding the right job, but also required that personal fulfilment regarding location must be achieved. These findings also allude to a potential change in how young people view the world. In the next section, I will delve deeper into the emotional aspects that influence the geographical location for one's future self.

### 7.3.2 The role of personal disposition and social status in transitioning from a degree

Youth transitions literature has considered the impact of geographical movement on the individual's sense of place (Gabriel, 2006). Exiting university brings new challenges. Graduate prospects are the pathways taken from graduating, however the discourse is often focused on becoming employed sooner rather than later, particularly in policy documents, reproduced through university publicity, and presented in media (Boden and Nedeva, 2010; Arora, 2015). This brings about an abrupt shift in what Louise called 'labels', wherein there is an expectation placed on young people to suddenly present themselves in a way different from who they were a month prior. Here, we observe that the individual's situation is drastically different from the point at which they decided to move for their degree. This section will explore the interplay between two factors that impact mobility and future locations of young people; these are:

1. Financial plan as a graduate
2. Relationship with family

When transitioning out of a degree, a young graduates' notion of independence has arguably changed, particularly in relation to financial situation. During the years of their degree, British students receive bursaries, granted in accordance with their socioeconomic situations. Some have this amount supplemented by family for living costs, or take up jobs to fund their leisure activities, as in the case of Louise. The questionnaire in **Chapter 5, section 5.2** also reveals these patterns. On completing their study, this income ends and they must find a job. In this scramble to the next step, various strategies are undertaken. They can take time off to travel before starting their graduate scheme, such as in the case of Tony and Ash; they can return home temporarily to then be able to move to their new location should they be continuing as a student, such as in the case of George and Zachery; or they could take up any job they get as in the case of Isaac, Alice, Jane and Louise. Of these latter four, Isaac had a graduate job and, although he did have the opportunity to travel for a week with his family, he still needed to take up a job for the six week interim period to maintain financial stability; Alice took a job at the local council which she got with the help of her mother; Jane took an entry-level summer job; and, Louise took a job she got via an agency focusing on investment banking to begin her career. Saving money became a priority once Louise and Tony each returned home; both mentioned thinking about buying their first house. Alice was looking to save money to fund her international travel, an objective Vigurs et al. (2018) call the 'Graduate Gap Year' which is a shift from the traditional 'Gap Year', or a year out of study, following A-levels. Saving money was not a priority for Jane. Instead, having a job

supported her recovery, as seen in her story. Based on personal motivators and financial situations, the individual appears to make decisions about what to do immediately after graduating. The factors that influence these 'destinations' are highly subjective.

The second main aspect of influence that will be discussed here is the family in young people's decision-making about their lives following a degree. This research reflects the findings that family does influence young people's decision-making in varied effects. The theoretical framing accepts that although familial relational goods may exist, there are variations in how individuals may use them. Instead, the family takes a backseat, save in the case of those deploying a communicative mode (Archer, 2007). In some instances, while family may have influenced decisions to enter university, the influence decreases when looking for a job. For example, Alice spoke to her parents about choosing between work and doing a degree, with her father leaving the option open to her. In thinking about her life after graduation, Alice made the decision to travel. Inspired by her brother, she nonetheless had to frame her own pathway and convince her parents to accept her decision, which they did not do so willingly. This was the same for Jane who explained that her family had high expectations, but she felt she needed to return home to nurse her mental health. Her family eventually accepted Jane's decision to take her progression into her career future at a slow pace. Zachery incorporated his father's advice, and mentioned that his father would know what was better for him than career service providers which perhaps stemmed from the feeling that the careers service could not help him. However, he was still able to negotiate a certain pathway that suited his logic over that of his father's. It was incorporated to an extent in his decision-making but it could not be seen as occurring to the extent that Zachery did not make his own choices. He had his own set of concerns.

The other side of this situation is what Archer (2012) called 'family relational evils'. Though a debatable use of terminology, this relates to the reduced tendency of reliance on family and associated privileges. This was the case for Tony, Isaac, Louise, George and Ash. However, each were in varying proportions, as seen from the summaries for each story in **Chapter 6**. Tony and Ash appeared to be meta reflexives in addition to Autonomous reflexives. Tony's parents offered him a place to stay when Tony decided he wanted to return home, though this was as a result of his not having a job offer as yet and his sister's bad experience of renting. For Ash, this was a result of him not wanting to follow his father or remain in rural Northern England. Louise explicitly noted that her parents could not help her as no one in her family had been to university, and her parents only repeatedly asked her about when she would get a job. Isaac did not mention family at all, and perhaps like Louise, this

related to them being the first in their family to go to university. Both Louise and Isaac had a lower likelihood of enacting a meta-reflexive mode of decision-making. This in turn arguably related to socioeconomic status. Therefore, we find that both financial and familial expectations do play a defining role on decisions, though it is imperative not to assume these as the only signifiers of decision-making for possible futures.

Research has repeatedly shown that social class has a defining impact on the experiences of young people in university (Crozier et al., 2008; Dunn, 2014; Ingram and Allen, 2018). Although this thesis did not focus on class, it did emerge as a factor that had an impact on experience, echoing a large amount of research done on class-based experience of HE, as highlighted in **Chapter 3, section 3.1.1**. This thesis adopted Irwin's (2015) proposal to use participants' terms of reference to relate to what may in social research be considered indicators of class, should they arise, so as to not confront the participant with such categories of disadvantage. Similar to findings by Irwin, when asked about their experiences in relation to class, participants tended to group themselves within a 'middle'.

This section highlighted some aspects of personal and social status that influence future trajectories of people in relation to occupying a space. It is not often seen as relevant or having a strong impact on employment and career-related decision-making. It stands in contrast to the fairly economic value-focused discourse seen in **Chapter 2** and **Chapter 3** regarding how young people think of their futures.

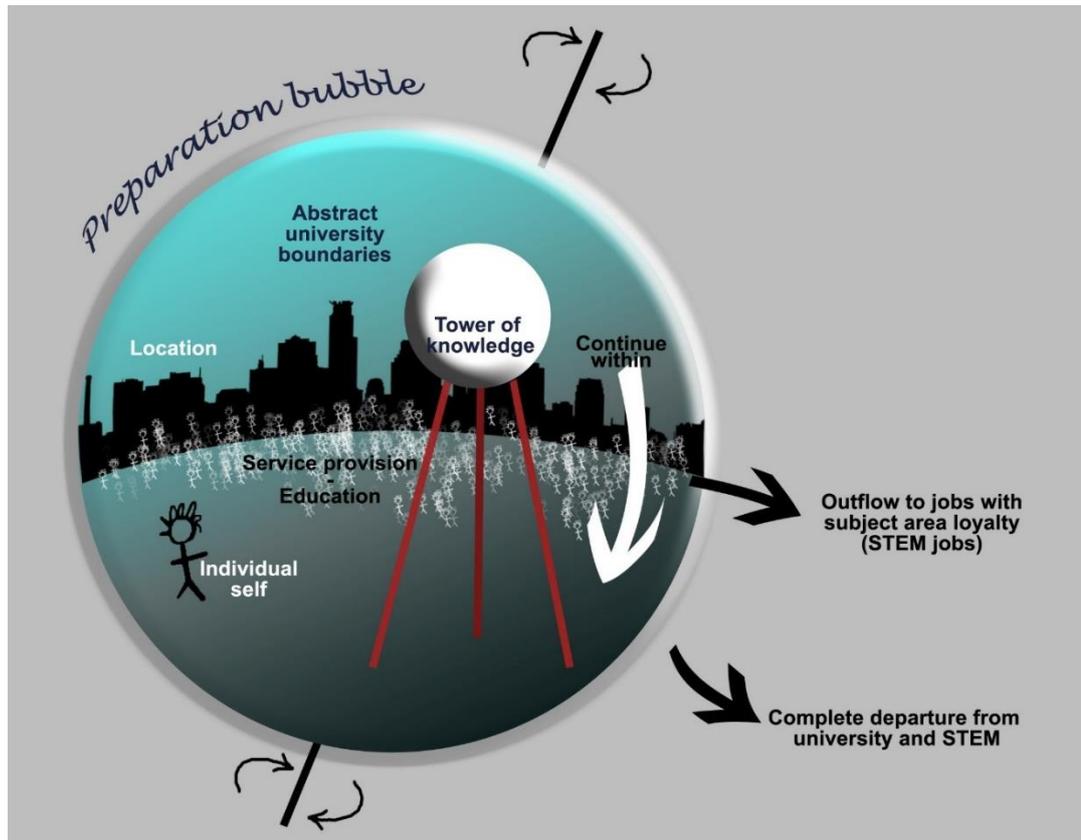
### **7.3.3 The university as heterotopia**

The university system in the UK has undergone drastic changes over the past 30 years; it has been subject to international and national scrutiny and modification to satisfy market criteria (Mayhew et al., 2004; Olssen and Peters, 2005) and come under severe criticism for the sector's adoption of marketisation policies fuelled by neoliberalism (Naidoo and Jamieson, 2005; Naidoo and Williams, 2015), particularly relating to employability (Brown et al., 2003). These criticisms are largely related to the way in which universities are run in relation to the market.

It is important to reflect on the cyclical and paradoxical expectations through the employability agenda here. A driving thought behind the employability agenda is to facilitate access to jobs through "developing" the individual to become capable of competing in the job market. This suggests that by encouraging employability development all students will be able to become an asset to companies and perform their job effectively (Andrews and Higson, 2008). On the ground, this translates into a contradiction, wherein:

1. The university is a site of training or meeting the training needs of the knowledge economy (which relies on market competition); simultaneously,

2. Market competition is somehow suspended in how people (graduates in particular) are expected to select jobs to respond to demand and supply needs.



**Figure 20 University as a preparation bubble**

In this section I aim to re-think the way in which the university is said to function. University is seen as a ‘bubble’, currently imagined as in **Figure 20**, and out of reach from many. However, this is true only in part. The changes in HE had made the university dynamic. As a structure, it is influenced by and influences those that interact with it. It is also part of a wider system within British cities. As explained in **section 7.3.1**, the presence of universities has had an impact on the geographies in which they are located. New economies, for example, emerge to cater to this population. However, just as these geographies are transformed, so too are the populations that move into it. They also are transformed by the expectations of change placed on them. As such, the university (campus) becomes similar to Michel Foucault’s (1986) idea of a heterotopia.

*There is also, and probably in every culture, every civilization, real places, actual places, places that have drawn in the very institution of society, and are kind of against-location, kind of actually realized utopias in which the real sites, all the other real sites that can be found within the culture are simultaneously represented, contested and reversed, sorts of places that are out of all places, although as yet they are actually localizable. These places, because they are absolutely all locations other than that they reflect and they talk, I will call, in contrast to utopias, heterotopias (Foucault, 1986, p.24)*

Foucault identified 6 principles of a heterotopia. By the first principle, the university becomes “*heterotopias of deviation: those in which we place the individuals whose behaviour is deviant from the average or the required standard.*” (ibid.: p.25). Being a space of focused, perpetual learning activity as opposed to the everyday world renders the university a space of otherness, a heterotopia. This is also related to the nature of it being both, a formal and informal space, where the individual is neither a producer nor a consumer, yet simultaneously both. This was particularly reflected in the participants talking about their decision to go to university, as in the case of Alice who spoke about university as an ‘experience’ (see **section 6.3.1**). It is also reflected in the reasons Louise and George were glad to have left university to shed a label.

The next principle of a heterotopia is related to its historical positioning in society wherein it can be transformed as a space along with the society around it, yet remaining constant in terms of its relation to the context. Foucault gives the example of the cemetery being a common space of reference, of either being there (dead, buried), knowing someone there, anticipating going there, or visiting on auspicious days. These rituals too may change over time and influence others. Here we can consider the use of university as a reference point in terms of its historical position and its subsequent transformation through massification and marketisation that has in turn transformed society. This is what has made more people attend university, evident through many students being first in their family to go to university, such as in the cases of Isaac and Louise.

The third principle states: *The heterotopia is capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible* (ibid., p.26). The university space does exactly this by bringing people from different backgrounds, nationalities and so on together, and, although focuses on one economy of education, it also includes a multitude of economies within it such as care, cleaning, administration, legal and other services. These various economies and peoples are not often seen as relating to each other, but constitute the wider university (as heterotopia). Perhaps Louise embodied an aspect of this principle. Studying, being part of different societies and working at the bar on campus allowed her to be in the same campus space performing all these roles.

The fourth principle: *The heterotopias are related, most often, to slices in time, that is to say, they open onto what might be called, for sake of symmetry, heterochronies; heterotopia begins to function at full when men are in a sort of absolute break with their traditional time* (ibid). Here, Foucault gives the example of libraries, which in addition to universities having, they also hold records of other sorts which may represent such heterochronies. Buildings as structures within universities represent these heterochronies as they are built at different points, performing different

purposes. This may change over time to suit new purposes. For example, buildings may be renovated to incorporate stylistic elements of successive periods.

The fifth principle of heterotopias is they *always presuppose a system of opening and closing that both isolates them and makes them penetrable* (ibid., p.27). The university has often been referred to as the 'Ivory Tower' owing to this paradoxical situation in which access is both permitted whilst simultaneously being exclusive. For example, the qualifications required to completely engage with the university work as a barrier for access. There are also other symbolic forms of the space being penetrated such as through public lectures, the location of universities very close to cities and/or with public roads cutting through the campus, doors being open during working hours. Yet simultaneously, there are gatekeepers and access codes for some spaces. An identification card, for example, is needed to visit most libraries. This reveals an element of isolation of the university from the 'other', yet simultaneously the university is presented as a place of access, and relates to wider society too such as through the use of public art (Zebracki et al., 2017).

The last principle of heterotopias is its function that...

*unfolds between two extremes. Or they have the role to create a space of illusion that denounces as still more illusory real space, all locations within which human life is compartmentalized. Perhaps it is the role played for a long time by those famous brothels which are now private. Or, conversely, creating another space, another real space, as perfect, as meticulous, as well arranged as ours is messy, ill-arranged and jumbled. That would be the heterotopia, not of illusion but in compensation, and I wonder if this is not a little that way here that some colonies functioned. (Foucault, 1986, p.27)*

This aspect of the heterotopia, when qualifying universities as such, can be difficult. The way in which departments function in accordance with disciplinary remit may qualify universities as illusory given that these demarcations are indeed artificial but are physically contained nonetheless. It could however also be a space of 'compensation'. The hierarchical structuring of universities, and indeed sometimes the colonising nature of them, gives it this feature of 'creating another space'. Therefore, it is difficult to know where between these two extremes the university under late modernity can fit, however these arguments show that it is possible to find it along these extremes. This illusion and it's breaking down is what enabled Jane to take up modules in different departments, which ultimately strongly influenced how she thought about her future.

While inside the heterotopia, the individual is transformed in symbolic and social ways. Passing through this space therefore would imply being affected by it, given these six principles. Once the individual leaves from a heterotopia, it is true they no longer need to present in the same way as is expected of them in the heterotopia,

here the 'Other' space of the university. Indeed, the participants themselves seemed to view the university as some 'other' space referring to the 'outside world' as the place they would progress to after university. However, this 'other' space transformed them, something they reflected on as they transitioned. Tony noted that he was able to learn quickly on the job, but that he also developed 'soft' skills that eventually helped him. Isaac appeared to feel a similar way, though he did feel that the over-stimulation while being at university in order to influence employment futures was unnecessary and did not always translate into the world of work. However, it did serve as a more gradual introduction to living away from home. Louise noticed her transformation while she held on to the belief that she was someone who would do any job, it became evident to her that she needed something that coincided with her enhanced knowledge. Most participants who returned home also noticed these changes to their outlook. The impact of going into the heterotopia and then leaving it was also evident in Jane's story. She was excited about going away to university, but when she was inside it, her experience had an impact on her mental health. When she left the heterotopia, she slowly but surely regained her confidence.

It must be noted that the university as a heterotopia does not wholly explain the situation. It contributes to a better understanding of the process of transitioning from university, alongside other factors of influence. This is a preliminary attempt to make sense of the university as a type of space and to consider the impact it can potentially have on individuals. Moving away from the notion of the university as a 'bubble' which appears to reproduce class-based stratification of admissibility and not belonging, viewing the university as a heterotopia offers the opportunity to transform the university to remove class divides, to identify the discontinuities and asynchronies, just as has historically happened to the spaces identified by Foucault in the principles above. Discussing this beyond what has been presented is outside the scope of this research largely for practical reasons of not having sufficiently explored it – the importance of geography in the transitioning process from a degree was a finding, as a result of analysis, rather than an initial observation or through the literature.

## Chapter 8 Conclusion

Through this chapter, I will highlight the main contributions to knowledge that this research has made. I will trace the ways in which I developed these understandings and what implications they have for how we understand the graduation trajectories of young people. I will then consider the limitations to this work and highlight potential work for the future that can build on this research or address limitations.

Thus far, through this thesis, I have highlighted how varying factors influence the Internal Conversations (Archer, 2003) of young people as they make their way through life through their final year of a physics degree and into the first six months after graduation. The results support an argument to view employability as a process of transitioning through a degree, with the individuals seen as existing between the structures in place (such as policy and other provision) and through their agency (including cultural particularities, and other personal aspects) and seeing it as more than just getting a job.

This negotiation took place at two sites – the degree programme (as a symbolic label) and the university (as a space). It found that the young people in this study had three overlapping points of reference for mobilising their degree to help them transition to their career futures: the perception of their particular degree as a qualifier for employability; the reliance on a science ego to act as a boost to their confidence and likelihood to get a job; and their process of negotiating a sense of self as a graduate.

Outside of the degree, a factor influencing trajectories was the relationship people had with geography. The experience of mobility weighed heavily on decision-making before arrival to university (Patiniotis and Holdsworth, 2005; Holdsworth, 2009; Smith, 2009) but equally so on departing from it, which brought new challenges. Accordingly, an attempt was made to initiate a process of thinking of the university as a space that is not just exclusive as in the imagery of a bubble, but through the notion of a heterotopia as a potential conceptualisation of the university as a space and place. Overall, the findings reiterated some aspects already known in the field, but took the subject further to understand *why* certain decisions get made.

### 8.1 Contributions and implications

This research focused a microscopic view of a macro-level phenomenon: the impact of individual decision-making on policies aiming to increase uptake of science education and the continued stress on employability as an agenda in Higher Education (HE) policy. The aim was to understand how young people make decisions about their future trajectories from a science degree. The focus was on the role of employability in this process. Before going further, it is worth taking stock of the

changes that have taken place over the year that have implications for future work. This includes the HE landscape, the labour market and politics, and the employability agenda. It reiterates the constantly changing nature of the HE landscape, presented previously in **Chapter 2**. In fact, as this thesis was finalised, the Augar report '*Review of Post-18 Education and Funding*' emerged and is being discussed amongst the wider post-18 education sector. To reiterate the notion of employability, one of the key recommendations of the report reads:

*Unless the sector has moved to address the problem of recruitment to courses which have poor retention, poor graduate employability and poor long term earnings benefits by 2022/23, the government should intervene. This intervention should take the form of a contextualised minimum entry threshold, a selective numbers cap or a combination of both. (Department for Education, 2018, p.102)*

Here, it is possible to draw a very succinct conclusion in relation to this thesis: this too will have implications for how HE is delivered and experienced.

Alongside this is the turmoil and inconclusive discussions surrounding Brexit, Britain's departure from the European Union trade agreement. This will have political and economic implications for the labour market that are yet to be understood. A final shift that needs to be mentioned is perhaps more positive. In 2017, the Destination of Leavers from Higher Education (DLHE) statistics that followed up on the status of students six months after graduating changed to the Graduate Opportunities survey to take place 15 months after graduation. This emerged at the same time that the government introduced the Teaching Excellence Framework which continues to be in an iterative process. These figures of the DLHE and Graduate Opportunities are often used as a proxy for employability in university ranking systems. The first cohort with which this new scheme of Graduate Opportunities took place included the participants for this thesis.

In essence, these changes point to the dynamic nature of HE. Negotiating it requires a considerable amount of immediate thought and action (alongside a lot of patience).

Focusing on students and subsequent graduates, as was revealed in **Chapter 2** and **Chapter 3**, has been lacking in research. This research has three main points of contribution to knowledge which will be discussed in turn. These contributions are:

1. As empirical work on graduate transitions: A longitudinal, in-depth study adopting narrative as an approach provides new evidence of the ways in which students engage with and negotiate transitions from a degree to their futures
2. Ontological and epistemological shift in thinking of students and their temporal shifting to graduate selves.
3. Theoretical: The use of Margaret Archer as a departure from the reliance on Pierre Bourdieu has enabled a better understanding of the personal nature of decision-making while also acknowledging structures in place.

All these will subsequently be considered in relation to their policy implications. To explore the first two points of contribution I will re-visit the Research Questions in **Chapter 1**.

### **8.1.1 Empirical contributions**

The thesis had three Research Questions (RQs) which were addressed through the questionnaire (**Chapter 5, section 5.2.1**) and case stories (**Chapter 6**). In particular, RQ1 hints at the empirical contributions of this thesis.

*RQ1: How and for what reasons do young people on a physics degree programme engage or not with employability development opportunities?*

The responses to the questionnaire on the activities engaged with and their reasons for doing so, presented in **Chapter 5, section 5.2** served as a key way to answer this research question. The insight gained from this was important to respond to this RQ, however stopping here would provide only superficial responses. Furthermore, the concerns that people had left questions unanswered. Therefore, as presented in **section 5.3**, the in-depth qualitative aspect enabled a more robust empirical basis for the theme of transitions from a degree, particularly one in science.

From the case stories (**Chapter 6**), the reasons for engaging with employability opportunities or not doing so are clearly presented. It reveals discrepancies in how employability is narrated as an agenda to prepare students for future employment. Furthermore, the longitudinal empirical material is invaluable to understand the process of transitioning. For example, in Louise's case, despite engaging with employability, she did not get a graduate job. For Tony, he managed to get a graduate job through a friend. In **Chapter 7, section 7.1**, I presented a critique of formal routes to employability as a result of these discrepancies. I located the problem in a one-dimensional viewing of graduate transitions and ways to get to a desired future.

This research echoes findings from other studies that show that young people are aware of the need to engage with employability opportunities to be able to influence their employment outcomes (Tomlinson, 2008; Appleby et al., 2012; Morrison, 2014; Wharton and Horrocks, 2015). However, the outcomes differ greatly, and while some may gain, other young people may eventually find themselves let down by the results as they may not always reap the fruits of their additional efforts. The process of transitioning may also be daunting (Hordósy and Clark, 2018) or time-consuming as the 'destination' is visible later on (Christie et al., 2016). They may also end up being excluded for not participating in some activities which eventually has a negative impact on their mental health and future trajectories (as in the case of Jane and George in this thesis), and may be rejected because of their having a degree (as in the case of Louise in this thesis).

Because the experiences and decisions are individualised, they are not generalisable in the sense of fulfilling a positivistic need for statistical significance. However, the stories offer 8 distinct reasons why the STEM skills gap continues to exist, even in cases where it is technically responding to it.

### **8.1.2 Ontological and epistemological contributions**

The final two research questions will be used in order to present the ontological and epistemological contributions of this research. It will include the aspect of science education as well as other factors that were found to influence the process of transitioning from a degree. Once again, the longitudinal element of this research is crucial in displaying the temporal aspect of transitioning.

*RQ2: From their perspective, how do young people on a physics degree relate their degree discipline to their graduate prospects?*

The findings from the questionnaire in **Chapter 5, section 5.2** reveal that students made a link between the skills they developed on their degree as helping them in their future work, though the careers were not necessarily or obviously related to physics or science. Following on from the analysis of the cases, **Chapter 7, section 7.2** focused on the role of science in the ways in which young people make sense of their transitions from a degree. Here, the link between physics and any employment was made by all participants prior to entering university, citing it as giving them access to a broad range of options, it being academic, or just liking it. Simultaneously, many wanted to go to university because it was a common trajectory for young people. The process of transitioning from a degree however was different as it included two new aspects of the self. The role of a science ego was highlighted, offering an alternative to considering how individuals interpreted the world through their experiences (keeping with the Critical Realist subjective epistemology) and went on to access jobs. It was a feature that existed across participants. However, this did not always imply a direct trajectory to a science job and the notion of the graduate sense of self, building on Holmes' (2001; 2013b; 2015) *graduate identity*, took precedence (see **Chapter 3, section 3.1.3**).

Alongside this, the perception of a physics degree as employability in itself and the sense of being a graduate in the discipline are conceptual tools that can aid a better understanding of graduate employment and career futures. All were optimistic about their futures because of the discipline of the external validation of their degree, though this posed a problem for some who when they finally transitioned began to question the expectation placed on them to undertake a science-focused job.

*RQ3: What influences young people's decision-making processes as they transition from their undergraduate degree in physics to their graduate career futures?*

RQ3 was largely responded to through the case stories, though the questionnaire offered some hints about the role of the degree itself in supporting this process. An understanding of these additional factors of influence help clarify the reality (ontology) of going to and through university, and subsequently exiting it. This was presented in **Chapter 7, section 7.3** as the geographical factors of influence. I attempted to present the possibility to know more about this reality of being in the university by deploying Foucault's (1986) conceptualisation of a heterotopia to explain the university as a space. It moves away from the conservative notion of a 'bubble', and encapsulates a variety of complementary, contradictory and other functions.

### **8.1.3 Theoretical contributions**

This research offers a divergence in theoretical perspective from the more popular use of Bourdieu to study the experiences of university and transitioning from a degree. Instead, it refocuses employability from the perspective of the individual themselves, reflecting a Personal Emergent Property (Archer, 2003, pp.93–94). It takes this perspective forward by considering how individuals present themselves and report being received by employers and others when thinking of themselves as employable graduates (Holmes, 2001; 2013), and subsequently incorporate this into their internal conversations about their employment and career futures. This theoretical framing, being a shift from the norm, frames the final contribution to knowledge of this thesis.

This research strengthens the argument that young people's engagement with their graduate prospects involves a congruency of individual lifestyle choices and conditions of the available jobs. Young people, alongside the precarity and insecurity to which they might be subjected (Hordósy and Clark, 2018), negotiate the world around them to achieve their goals which qualifies them as meta-reflexives. HE has the potential to contribute to the creation of an informed active citizenry which is crucial to democracy. The assumption that a graduate becomes one in order to undertake a job reproduces the notion that HE serves the purpose of the economy and nothing else, constructing an expectation or predefined mould into which anyone transitioning from a degree needs to fit. All problems of the agenda withstanding, it is essential to understand employability as one of negotiation rather than just action and interpretation.

From a theoretical perspective, five of eight participants were primarily autonomous reflexives; three of these seemed to have an additional mode to this. The remaining three of eight appeared to be meta-reflexives. This supports the notion that young people are increasingly made to rely on their own processes of thinking and having to make immediate decisions and plans rather than relying on external expectations or validation (Archer, 2012).

There were, however, some shortcomings to this approach. This included:

1. **Absence of the role of geography:** The theory adopted does not necessarily highlight the role of geography in decision-making, however the use of Internal Conversations as an analytical framework enabled such a theme to emerge.
2. **Focus on Global North:** Archer (2012) explicitly notes that this theory is relevant to the 'developed' world. Setting aside the problems of using such a classification, it is problematic to consider only a limited section of the population within so diverse a context as a university. This was evident in the case of Zachery. However, this is a shortcoming of the way the theory is formulated. Perhaps a counter-argument for the use of Bourdieu to keep such problems in check is indeed important. Such an argument has been proposed by Burke in Tomlinson and Holmes (2017).
3. **Judging mode of reflexivity:** There is a lack of clarity in the way the theory is presented that truly qualifies the way in which one may judge which mode of reflexivity is at play. In some instances, it felt that although the theory proposes to understand the complexity of decision-making, it merely relies on one of the contributing aspects to an Internal Conversation, the 'successful' one that is presented for the listener. Arguably, the longitudinal nature of this research should address this issue.

Furthermore, through this research, it was found that many individuals displayed more than one mode of reflexivity, and appeared to contribute to different aspects. This duality of the mode of reflexivity is also briefly raised as a concern in very recent work by Baker (2019).

#### **8.1.4 Implications for Policy**

The stories support this argument of the complexity of decision-making. Each of the participants' lives shows how it is not possible to supply a one-size fits all approach, comment on British society in relation to individualisation and the failure to recognise the lives of all students is reflective of facilitating isolation. Responding to a skills agenda is irrelevant to them other than as keywords in policy discourse. However, a recent critique that Brooks (2018) offers about academic work on how policy understands students suggests a different reality – that the vocabulary of vulnerability and paternalistic caring is actually part of how policy is structured in the UK, rather than policy-makers solely presenting students as consumers. This challenges the claims that policy only sees the student as consumer and does not approach the reality through a social justice view considering the differences in experience of HE. Instead, it very much buys into this social justice vocabulary, though with little to no intended change towards social justice.

These micro-narratives explain some of the 'big' questions raised in macro, quantitative studies. At the 'ground' level there is often a lack of coincidence of expectations through employability agendas and student practice and engagements (Lowden et al., 2011; Hooley et al., 2012; Jackson, 2013; Wharton and Horrocks,

2015; Kinash et al., 2016). The agenda passes the onus onto the individual rather than it being a collective endeavour. Students may come to resist this in undetected ways such as through a continued reliance on family for emotional support, and putting wellbeing ahead of responding to labour market perceived gaps. This reveals some of the tensions that make for an inability to make sense of employability figures, making the notion of graduate employability development a paradoxical process.

I attempted to consider the ways in which policy and academic literature treated the student as person, remaining sceptical of an endorsement of the complete consumer on one hand and the hapless victim on the other. Arguably, this problem is being addressed through the notion of a partnership between universities and students. Such a relationship does not appear to exist between employers and students, or certainly during the job hunting stage.

Based on my findings, I suggest the following considerations for HE policy-making:

1. An explicit consideration of the expectations of employers. For this, I suggest the development of a toolkit alongside relevant academic personnel to help employers understand the objectives and learning outcomes of programmes based on discipline. This will avert any problem with employers not understanding the skill set of individuals, and making the landscape difficult for students to identify relevant career trajectories for themselves.
2. Working with civil society groups, local governments and student groups, identify appropriate ways in which students can learn about the places to which they move. This sense of community can aid not just local areas but also the students future transitions.
3. Inclusion of young people from diverse backgrounds (including class and protected characteristics) on panels discussing HE policy. This will ensure that the policies incorporate the views of young people (rather than assume them).
4. Abolish tuition fees as they serve to hinder people from accessing HE.

There are also some implications for those within the university.

1. Career services may be able to mobilise the use of the notion of the 'science ego', and look for its equivalent in other disciplinary realms (see also **section 8.3**).
2. While work on schools repeatedly shows the positive impact that teachers can have on uptake of science or a particular discipline, this narrative appears to be missing in HE. Most participants mentioned feeling like they had a professional yet personal relationship with their tutors which helped them gain confidence. Personal tutors should receive additional help to best support students including a significant amount of time set aside for the task and continuing professional development.
3. More and better mental health support, potentially extended to staff.

Many of the suggestions here stress a need for collaborative efforts, or efforts relating to wellbeing. If such policies and changes are not made in collaboration, they run the risk of failing or creating new problems.

## 8.2 Limitations

Through this section I present the limitations of this research.

*Focus only on students to graduates:* This research does not include the perspectives of other stakeholders in the degree to career and employment future transition. Although it does not triangulate different views, it offers important insight into a relatively under-studied group. There has been considerable work on what employers want and what universities hope they are offering. These are glaring in academic and policy and public spheres, as argued in **Chapter 2**. In current situations, the student is removed from this equation. This research aimed to view student perspectives alongside the expectations of the other aforementioned stakeholders.

*Reduction in complexity:* One of the shortcomings of presenting any qualitative research is the need to reduce the amount of information presented in its lived form. Therefore, aspects of interviews that may be important would have to be left out because of constraints of the project. The Research Questions were used as guides to select a specific topic of discussion. Were the questions to be slightly different, a different thesis would have been written. For example, if the question of geography was more prominent, the thesis would have included maps used as part of the interview process. These eventually remained an activity that was recorded, however, this has scope for future work.

*Methodological:* This study was carried out in a single institution and single discipline in order to control for other factors of influence. This has been explained in **Chapter 4, section 4.4**. On reflection, additional disciplines in the same institution or in different institutions could have improved the scope of data. However, the depth achieved in responding to the RQs within the resources and timeline would have been compromised to include other institutions and disciplines. Future research may build on this research to explore possibilities in other disciplines and institutions.

Despite these shortcomings, the findings from this research may be useful for a range of individuals, including careers professionals, curriculum designers, students themselves, employers and policy-makers. It can also be of help to lecturers and personal tutors looking to improve their understanding of student transitions which in turn can influence their teaching or mentoring practice.

## 8.3 Future work

This research has raised a number of concerns regarding the landscape of HE. Following on from the discussion presented in Chapter 7, the following suggestions for future research may be considered.

Higher Education as a landscape demands an emotional engagement with education, different to previous education years. In order to cope with this, the degree discipline was used as an empowering tool to rely on as a 'science ego' which improved the process of transitioning. This can be further enquired into through the testing of the two-part hypothesis, 'The encouragement to feel a sense of purpose is important and beneficial to the wellbeing and confidence of young people in transitioning from a degree. A sense of confidence in their transitions is most prevalent amongst those undertaking a science degree'. Furthermore, such an equivalent concept can be enquired into in other disciplinary remits, stressing on the strengths of the degree and the biases that society may have towards or against it. This can help understand and potentially address stereotypes.

Research continues to be undertaken on the experience of students as they occupy new spaces within the university. It would be worth attempting to undertake this research with a focus on the efficiency of using the concept of a heterotopia in the use of the university as a space and the relationship it has with the transformations experiences by those within this space.

An under-explored aspect of this research related to the ways in which young people expressed their plans for the future. Under such precarious times, it appears that rather than resist the changes, young people may come to 'exist' within them (Ferreira, 2016). Future research can consider aspects that have been raised through this research relating to ethical sentiments attached to selecting work and the sense of self-fulfilment while negotiating complex, challenging landscapes.

Following up on the limitation of a single-site, single-discipline, further research can be conducted across different types of disciplines and institutions to understand if this phenomenon was unique to Yorkshire Urban University or not.

Finally, this research contributes to the wider critique of the changing perception of the purpose of HE. It begs more pedagogical questions regarding what path is expected for not just HE as institutions, but knowledge in society. Therefore, future research can build on the question of the purpose of HE from a question on the use of knowledge in everyday society. It would ideally use a triangulated analysis of perceptions through in-depth, qualitative research.

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## Appendix A Report from Preliminary study

### Overview

For analysis I will use Thematic as well as Narrative Analysis. Here, I will present each actor's storyline but will also consider some of the tensions at play from having to narrate these stories. Eventually, I will attempt to extract meaning regarding their negotiation of employability through their stories. The data is limited by a) its 'group' aspect which often poses a difficulty in taking forward stories from individuals, and b) owing to the diversity of the 'characters' involved in the research. I have reconstructed students as individuals, or 'characters'. The purpose of this is to understand the narratives and life-worlds of each student to position their performance or rather their sense-making processes. I have given participants the pseudonyms of Emily (female, British), Andrew (Male, British) and Aman (Male, International).

Some themes emerge regarding how students engage with employability during their degree programme. It reveals a messy relationship between degree and graduate prospects. The common background is a Physics degree which has been negotiated in different ways, yet they are bound by one instance of commonality in engagement with the employability agenda in practice i.e. the summer placement, acting as a common point of reference

### Reconstructing student characters

Emily.

She is from 'somewhere in the middle of England'. Aspiring to be an Astrophysicist, she sees Physics as the most important thing that anyone could study. Needless to say, she is fairly focused, perhaps the most focused regarding her career trajectory. Particularly important to her is the subject-matter of her programme. She had a PhD in mind and had thought this through from the age of 14. She did not feel she could be convinced into doing anything else, it doesn't even matter what university she goes to, just as long as she can study what she wants. As a result, she did not actively engage with much of the co-curricular activities offered; though she interacted with them, there was no distinct sense of a need for them to define her life-trajectory. She participated, at an organisation committee level, in various societies on campus in order to meet like-minded people. She feels that university has helped her personally by allowing her to be away from family to cultivate a sense of independence. Her independence was of mind and self. She had planned to do the summer placement from the time she read about it being offered whilst scoping universities during her A-levels. This, she said, influenced why she came to this University.

Andrew

He is not as focused on the subject matter, though he has been preparing himself for the career market particularly meticulously. His motivation is largely his competitive nature. Initially he wanted to do history or law, but did a placement in law before and decided it was not for him. A degree, he feels is not enough. This is what motivated him to apply to be on the MPhys programme which would leave him with a higher qualification than most in the job market. He reported that his degree was a 'good' one and therefore his prospects would be good due to a perceived worth of Physics in society. He was also part of organisation committees in societies on campus and engages with his older peers. He doesn't seem to have a particular job in mind, and had considered undertaking finance and corporate jobs. He often works, and in order to save up money for his year abroad, for which he went to the USA, he decided to get a 'regular job'. On his return to university for his third year of four, he decided the placement would be a good idea. His reason for thinking about employment is not having to go back to the "ghost town" he grew up in.

Aman

He is highly motivated by the experimental nature of Physics. He likes to make things and Physics offered him the best opportunity to explore big ideas. He was raised in India and initially wanted to undertake engineering, but was not happy with the way in which it was being done and the purposes it was used for, so he decided to do Physics. He seems to always want to try new things in science. For his year abroad, he specifically decided on a certain university in Singapore which offered subject matter not provided in his current university of study. He is focused, similar to Emily, but more strategic about his way of choosing options, and is open to testing his interests first before diving into them. He does not participate in additional activities. Therefore was not part of many clubs or societies run by the University's Students' Union, and did not find them interesting. He felt that the various opportunities provided by the university were very helpful, mentioning things like seminars and talks as opportunities to know more about ideas in Physics. These add-ons all contributed to what he said was helping him to narrow down his area of interest. He is would prefer to go on to industry or research opportunities.

### **Degree and preparations for the world of work**

In speaking about how students understand their degree and their graduate prospects, a relationship between skills, study and employment was quickly established. The responses suggest that the reason for undertaking the degree and the perceived outcomes of doing so determines engagement with employability.

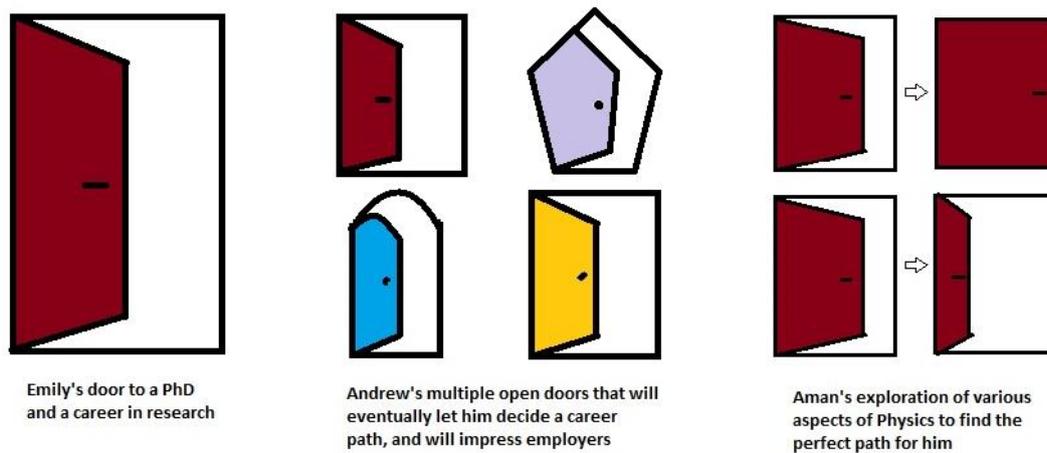
In some ways, each student is attempting to 'get their foot in the door', which can be done through learning, experiencing new things in their discipline, and sometimes going beyond. Each perceive the extent to which that door to their plans for the future remains ajar – metaphorically (see **Figure 21** for a graphical representation). For example, Emily has decided that she wants to do a PhD, and continue on into research. She believes that by being in University, the door to her career path is open, and will remain so even if they are at different locations. Andrew has been dabbling in different things, and sees himself as having opened many different doors. This may be motivated by his competitive nature and a belief that in doing a range of things, his portfolio will be seen as impressive to potential employers. For Aman, there is more planning involved. He explores with an intention to determine his interest as well as his capacity to perform. In narration, he stresses on his tendency to justify whether or not he should explore things by making careful calculations about it. To him, the metaphorical door is open enough for him to peer into, and then he decides whether to shut it or negotiate his entry. This is relevant to how they then went about engaging with employability development opportunities available to them.

Regarding their engagement with employability development opportunities, each suggest that they have done so on various occasions. They mention the need to 'grow' their skills, however, they do not necessarily see skills development as merely a check-box activity, but rather as process, similar to the definition provided by Harvey (2001). Furthermore, there is a sense of becoming a graduate through a broader experiential understanding. That is, to develop themselves, they participate in societies<sup>1</sup> on campus in addition to accessing various opportunities that may become available to them. Andrew saw his degree as serving the very purpose of employability, and the process of undertaking the degree too would determine how he copes with the 'real world'.

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<sup>1</sup> Interest groups set up through the Students' Union

Figure 21. Perceptions of pathways to careers through skill set negotiation



Similar to the suggestion by Tomlinson (2008) students see the importance of their degree, but also recognise the need to 'top it up' with their various experience of work-relevant skills. Emily suggests that although she attends various events for employability development, she believes she does not need them. However, as in performances, there is slippage in her narrative. When asked why she undertook the research placement, she offered the following explanation.

*Part of the reason I wanted to do one was because going into astro there is not much other work experience you can get so it was a logical thing to do, to do that and get the experience and skills and things that I would need in a career. But also I did that because I did want to build on those skills rather than focusing directly on the end point.*

'Employability' development may not be the right way to describe the motivations of some students. This reflects some of the concerns regarding a skills agenda approach which overpowers the pedagogical aspect of active learning (Holmes, 2001), and tends to contradict the narrative around what comprises employability, which as explained in the literature, is more than just skills.

It would have been helpful to further explore the underlying understandings Emily had regarding what an ideal career pathway was, what she saw as valuable skills development and why she made the decisions she did. This would give us insight into processes of sense-making which would incorporate both engagement and existing knowledge systems or truths that the individual holds which influences how they then act. The limitation of a group interview is evident in such instances, making a rationalisation of the use of interviews stronger.

### Becoming a Physics scientist

*If you want to be a scientist, then there's a process to becoming a scientist and university is part of that process. You could finish school probably try experiments at home, if you're rich enough to do that!*

*But that will still not make you a proper scientist in the eyes of the world.  
You would require to be accredited by something. – Aman*

Reiterated by all at some point is the belief they would not be a scientist with just an MPhys or a degree. However, they reserved this feeling for Physics graduates as those needing additional training to pursue their discipline. There was an element of pride in their ability to undertake a science degree, indeed in the 'need' for them to go beyond most others (in society) in terms of their educational training. The quote above by Aman precedes a claim that those in 'Accountant' roles do not need to have a degree, and can "*learn on their own. But you can't do that in science*". In many ways, this reflects beliefs of distinction similar to those held by the middle class of themselves as described by Brown et al. (2014) in a study on attitudes of students in elite institutions towards those in non-elite universities. Here, as we do not know the class of the students, it is only possible to suggest that there may be more to how students perceive themselves and their worth based on the subject they have undertaken.

This is important to the present study. Most definitions of graduate employability describe it as the development of a capacity or set of achievements and skills. Very often this tends to obfuscate the ways in which society tends to construct certain degree subjects, and the 'values' attached to it. The responses of students reveal this contradiction of the employers in the graduate market. Although employers suggest a need for certain skill sets, students are privy to insight regarding informal implications of doing a certain degree. In the case of Physics, we can see this through Andrew constant reiteration of the reputation of his degree as being a 'good one'.

*Researcher: What do you mean by 'Physics is a good degree'?*

*Andrew: So Physics is one of your core subjects, Maths Physics, any of the sciences. It's a Bachelors of Science, Masters of Science. That is well looked-upon by big agencies 'cause you really have to work harder. If you're smart, you have to be a problem solver, you really have to have the skills associated with a good science degree, and a Russell Group university helps.*

In briefing the participants about my project, I had identified that my background is in Sociology. Yet, this did not influence how the worth of Physics was constantly portrayed. In some ways this reveals the problems of relying on employers to dictate the discourse around employability as it has the scope to perpetuate biases within the neoliberal system (Boden and Nedeva, 2010). However, this could also point to a culture reproduced in Physics departments, the implications of which need further exploration. For example, Rahm and Downey (2002) suggested that in order to change perceptions of who can and cannot be a scientist, a change in oral histories (or portrayals) of scientists can change student perceptions of STEM subjects to make it accessible.

## Appendix B Questionnaire

### Information

You are invited to take part in a research project. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

### Aim and Objectives

This project is about how students in Physics prepare for the world of work while undertaking their degree, including plans, current activities and attitudes towards developing these skills. The aim is to understand student attitudes towards employment prospects. The research will look at the overall experience, opportunities, and any differences in experience. Based on student responses and feedback, the study can make recommendations for change.

### Your role and participation

You have been invited to be a participant because you are currently an undergraduate student in Physics. Your participation in the research is voluntary. It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and asked for your consent. Your responses will be anonymous so as to ensure no risk to you. If you agree to take part, you will fill out a questionnaire about your attitudes and activities, and a few questions about your background. The questions are multiple-choice and some open-ended for your opinion.

There are no expected risks to you for participating in the research. There are no foreseeable benefits either. However, you may choose to take part in the next steps of this study (interviews) which may encourage you to explore your graduate prospects.

All information that is collected about you will be kept strictly confidential and will be anonymised, nobody other than me will have access to it. I encourage you to respond to as many questions as possible as this would be extremely valuable to my research. The results of the research will inform on a PhD thesis. It may also be published as peer-reviewed journal articles, presented at seminars, and could inform policy.

### Protecting your information

Your consent form will be stored in a locker. Once digitised, consent forms and responses will be stored on a password protected institution drive, and paper copies will be confidentially disposed.

For further information, my contact details (Sinead D'Silva) are provided in the heading of this letter. Feel free to contact me with any questions or concerns about the research. If you wish to contact a higher authority, the supervisor for this project is Dr. Samantha Pugh (details in head of letter), and is able to address your queries.

**Thank you for your attention**

---

## Consent

I confirm that I have read the information about this research project and have had a chance to ask questions about the same, and consent to my responses being used in this research once anonymised. I agree to take part in this research voluntarily.

Signature: \_\_\_\_\_

Name : \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/2016

## Questionnaire on Physics student employability

---

1. Name (optional)

---

2. E-mail (preferred)

---

3. Year of study    1    2    3                      Programme Title: BSc / MSc in \_\_\_\_\_

---

4. Have you participated in any of these? (**Check all that apply**)

- Year in Industry
  - Summer Placement/Internship
  - Year Abroad
- 

5. What about these? (**Check all that apply**)

<input type="checkbox"/> Careers Fair and Opportunities days	<input type="checkbox"/> White Rose Industrial Physics Academy Fair for Physicists
	<input type="checkbox"/> University -based
	<input type="checkbox"/> Opportunities Day (School of Physics)
	<input type="checkbox"/> Other Schools/Universities: _____
	<input type="checkbox"/> Other _____
<input type="checkbox"/> Volunteering	What do you do?
<input type="checkbox"/> [Student Union] Societies	Which? What is your role?
<input type="checkbox"/> Seminars (talks, not modules)	What theme?
<input type="checkbox"/> Conferences	Which?
<input type="checkbox"/> Other activities on campus	Please specify:

---

6. In a few words, can you tell me why you engage with these activities?

---

7. Where do you get your information from about these opportunities? (**Check all that apply**)

- |   |  |
|---|--|
| <input type="checkbox"/> Website        | <input type="checkbox"/> Posters in the Physics Building |
| <input type="checkbox"/> Flyers         | <input type="checkbox"/> Students in other years         |
| <input type="checkbox"/> Classmates     | <input type="checkbox"/> Student Office                  |
| <input type="checkbox"/> Teaching staff |  |
-

Other \_\_\_\_\_

---

8. Have you used any of these services? (**Check all that apply**)

- [University-offered Virtual Platform]
- Careers Centre
- Careers Advisor in the Physics building

---

9. Do you work during your studies?

- Part-time during term-time
- Part-time out of term-time
- Full-time
- No
- Other \_\_\_\_\_

---

10. What kind of work do you do, and why? If you do not, why?

---

11. What career do you have in mind, and in which sector? (eg: energy, business/finance, IT, teaching)

---

12. What are the stages to getting there?

---

13. Do you have a plan in place for after you graduate? (**Pick one**)

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li><input type="checkbox"/> I have a job lined up/ I am applying</li><li><input type="checkbox"/> Study</li><li><input type="checkbox"/> I have an idea</li></ul> | <ul style="list-style-type: none"><li><input type="checkbox"/> Too early to think of one</li><li><input type="checkbox"/> Not bothered</li><li><input type="checkbox"/> Other _____</li></ul> |
|--|---|

---

14. What is your biggest concern about life after you graduate (specifically professional, but personal things matter too)?

---

15. What aspects of your Physics degree do you think might be useful for your career plan and career path, and how? (such as the skills, subject matter, and so on – and how?)

16.

---

What were your A-levels (and scores)?

---

What was your Year 1 average score?

What was your Year 2 average score?

---

17. These are personal aspects of yourself. Your information will be kept strictly confidential, and nowhere will this be identified. Please consider responding to all.

---

a. Sex (Gender):  Male  Female

Other \_\_\_\_\_

b. Age:  18 – 24  25 – 29

30 – 45  45+

---

c. How do you classify yourself:

UK  EU  International

---

d. Are you on the Access to Leeds Route?

---

e. How do you fund your studies?

Scholarship

Parents

Other (Please specify)

Loan

Own funds

---

f. How would you describe your socio-economic background (class)?

---

g. How would you describe your ethnic background?

---

**Thank you very much!**

I would greatly appreciate your help with the rest of my study which is a set of interviews/chats during the year. This is for ANY student whether you do a lot or nothing outside of your degree in University – I would like to hear different thoughts. This will need no more than 4.5 hours in total over the next 12 months. To compensate for your time, I can offer you a quick lunch or a non-alcoholic beverage at meetings. Your story as you tell it is very important to my research.

If willing to help, please say so here:

Yes, I would like to help

Maybe – need more information

E-mail: \_\_\_\_\_

## Appendix C Information sheet and consent form

### **INFORMATION SHEET – Employability in Physics Higher Education**

You are invited to take part in a research project. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. If there is anything that is unclear or if you would like more information, do not hesitate to ask me. Take time to decide whether or not you wish to take part. Thank you for reading this.

#### **Aim and Objective**

The study aims to understand how students in Physics prepare for the world of work, including their plans, current activities and attitudes towards developing 'employability' skills while undertaking their degree. The aim of the project is to gain insight into how students in undergraduate physics engage with opportunities to influence their graduate skills and prospects during their time at University. In particular, I am interested in your individual motivations, support systems and experience.

#### **Your role**

You have been invited to be a participant because you are currently an undergraduate physics student in their final year of BSc study. Your participation in the research is voluntary. It is up to you to decide whether or not to take part. You will be invited to talk about your experience in a face-to-face conversation. This will take place at the University itself. Here, your opinion matters greatly; you will be the expert and can describe as much about your experience as you wish.

There are no expected risks to taking part in the research. There are no direct benefits either. Though, you will have a chance to discuss your experience and perhaps in the process gain clarity or motivation to develop skills further. All information collected about you will be kept strictly confidential and nowhere will your identity be revealed.

Information collected about you will include paper-based disclosure of some personal characteristics. You will be asked about your experience of studying physics, what opportunities you have accessed, and what you intend to do after your degree. You can tell me about what you like and dislike, what you think about your future pathway and what you think of the job market. The findings of the research will inform on my PhD thesis. It may also be published as peer-reviewed journal articles, presented at seminars, and could inform policy.

#### **Protecting your information**

The interview will be audio recorded and stored on a password-protected University drive. Transcripts will be anonymised. Consent forms and any other paper-based material will be digitised and stored on a password protected institution drive, after which paper copies will be confidentially disposed.

For further information, my contact details (Sinead D'Silva) are provided in the heading of this letter. Feel free to contact me with any questions or concerns about the research. If you

wish to contact a higher authority, the supervisor for this project is Dr. Samantha Pugh (details in head of letter), and is able to address your queries.

**Thank you.**

Consent to take part in 'The paradox of 'developing' employability'

	<b>Add initials next to the statements you agree with</b>
I confirm that I have read and understand the information sheet dated ____/_____/2016 explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that any personal information will be pseudonymised in research and publications.	
I agree for sensitive data collected from me to be used for research purposes, once personal information has been pseudonymised.	
I agree for the data collected from me to be archived in an open data repository and used in relevant future research as well as publications in a pseudonymised manner.	
I understand that relevant sections of the data collected during the study, may be looked at by individuals from the [University name] or from regulatory authorities where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	Sinead Marian D'Silva
Signature	
Date*	

\*To be signed and dated in the presence of the participant.

## Appendix D Interview Guide - Interview 1

Main question	Follow up questions
<p><b>1</b> What made you decide to study Physics?</p>	<p><input type="checkbox"/> What do you hope to get from your programme in Physics?</p>
<p><b>2</b> What made you decide to go to university?</p>	<p><input type="checkbox"/> What influenced your decision?</p> <p><input type="checkbox"/> What do each of these mean to you: being at University; gaining knowledge about Physics; plans following your degree</p> <p><input type="checkbox"/> Are you from Leeds? Why did you choose to come to Leeds?</p> <p><input type="checkbox"/> What was most important to you when deciding?</p>
<p><b>3</b> I want to talk specifically about your experience of HE. What do you think about your university experience?</p>	<p><input type="checkbox"/> This is a rather broad question, <b>but what has your physics learning experience been like</b> from the time you got here. What were the things you wanted to do, what were the things you ended up doing?</p> <p><input type="checkbox"/> What were the <b>highlights and memories</b> of each year?</p> <p><input type="checkbox"/> Are there <b>things on campus</b> that you are involved in outside of your studies? Co-curricular and extra-curricular too?</p> <p><input type="checkbox"/> How does that feature in your experience?</p> <p><input type="checkbox"/> What <b>other opportunities does the department and university provide</b>? Have you used them?</p> <p><input type="checkbox"/> From where did you <b>get information</b> about various activities and opportunities?</p> <p><input type="checkbox"/> For you, what is the role of this for your degree, and future plans?</p>
<p><b>4</b> Have you thought about what you would like to do after graduating?</p>	<p><input type="checkbox"/> What made you think of this? Has anything during university influenced this?</p> <p><input type="checkbox"/> Do you know where to <b>find information</b>?</p> <p><input type="checkbox"/> What <b>role</b> does having a <b>physics degree</b> play in what you would like to do in the future?</p> <p><input type="checkbox"/> What <b>employment opportunities</b> do you have as a Physics graduate?</p> <p><input type="checkbox"/> Have you discussed it with anyone? Who? When? Why?</p> <p><input type="checkbox"/> At what point do you think it is most appropriate for you to consider what you will do after graduating?</p> <p><input type="checkbox"/> What is the <b>process to getting</b> where you want to be?</p> <p><input type="checkbox"/> Have you done anything <b>during your time at university to influence</b> what you will do as a job? What? Why/not?</p> <p><input type="checkbox"/> What sort of things do you 'need' to know to be the <b>perfect candidate</b>?</p> <p><input type="checkbox"/> Do you think there could be <b>other factors that influence decisions</b> of employers?</p> <p><input type="checkbox"/> Are there any <b>barriers</b> to getting there and how would you overcome them?</p> <p><input type="checkbox"/> How will you <b>overcome</b> them?</p>

		<input type="checkbox"/> Do you have any support systems that can help you?
<b>5</b>	<b>Have you heard of the word 'employability'? What is it?</b>	<input type="checkbox"/> How might it differ from employment? <input type="checkbox"/> What does an employable physics graduate look like? <input type="checkbox"/> What do you think of the feasibility to develop and display such characteristics/skills? <input type="checkbox"/> What is the general attitude in your school?
<b>6</b>	<b>Are there any ways in which you think you are not supported? What suggestions do you have?</b>	
<b>7</b>	<b>Is there anything else you would like to share that I have not asked about?</b>	

## Appendix E Interview Guide - Interview 2

<b>Follow up questions</b>	
<b>How's it going?</b>	Since December? – Learning, exams – Term 2 – FYP
<b>The purpose of this chat is to follow up on what you have been doing, and to know what you have been thinking about your future including studies, graduating and work.</b>	
<b>Update on career front</b>	Applications/ Stage of progress/decision making
<b>How are you feeling about graduating?</b>	What does it mean to be a physicist? Are you a physicist? What makes a physicist?
<b>How are you feeling about work?</b>	Expectations / excited for? Concerns? What are you doing, or going to do in preparation for working?
<b>Themes + Activity</b>	
<b>Communication</b>	How has communication been about activities? / How have you found out about things? How do you usually find out about them? What do you think is available, what do you think is lacking? Whose onus? Anything you expected that did not happen?
<b>Social aspects and background</b>	Support/information networks - housemates, friends, family What has been the nature of the role of these for you, beyond what you have previously told me? Do you have any thoughts on the role of socio-economic background/ class as social background in HE, uni, and physics? How has it been for you? Do you have thoughts on the role of gender in HE, uni and physics? For you?
<b>Sector of expected future work</b>	What has the communication been like? Attitude in HE, uni and in physics? Information available; Skills learnt
<b>Anything else to update me?</b>	

## Appendix F Interview Guide - Interview 3

### **Follow-up Questions**

1. How are you? How has it been going? What have you been up to?
2. Have you completed graduation? How does it feel?
3. How were your results? Were they what you were expecting? On reflection, does it matter?
4. What does it mean to be a graduate now that you are one?
5. What's next? What have you been doing since graduating?
6. How does it feel? Is it different/same?
7. Is it what you expected? What's exciting? What's not?
8. What are you looking forward to? What aren't you looking forward to?
9. What is the role of your degree in what you are doing/will be doing?
10. What plans do you have for the future (6 months? More?)
11. What would you say to a student starting their programme now, based on your experiences?
12. Would you look to use university resources postgraduation?
13. Is there anything else about graduating your degree, your future that you want to talk about?

## Appendix G Interview Guide - Interview 4

### Questions:

1. How are you, and how is everything going?

2. How is your work going?

Was it what you expected?

What does doing this mean to you now that you are doing it?

3. Is there anything from your experience during your time at University that you have used while working now?

What about what you will do later?

4. What additional support or information could have helped you prepare for your career?

5. Is there any advice you would give your First Year self based on where you are now?

6. My PhD tries to understand how students make decisions about their future careers during their degree, and how they transition to their postgraduation lives.

a) There is a lot of literature that suggests that students need to engage more with employability development opportunities. What do you think of this, now as a graduate?

b) What do you think you felt as a student navigating this whole process?

c) What does it mean for you to be a graduate in this light, and also reflecting on what you first expected to get out of a degree?

d) As a physics graduate you are at the top of the 'most employable' chart. Does it feel that way? What is/was your experience?

e) Has it had an impact on what you are doing now?

7. Have you thought about what might happen in your future? (5 / 10 year plan)

8. Is there anything else you would like to tell me?

9. FINALLY, as part of my research process I need to understand if I have had an effect on you as a participant. Can you comment on this in your experience?

THANK YOU!