High Level Skills in Yorkshire and the Humber: Understanding the Drivers of Change

Phase 2 Realist Synthesis

A Report to Yorkshire Futures

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1 Introduction

1.1 Growing the base of high level skills in Yorkshire and the Humber (Y&H) is a key element in boosting economic performance. This study seeks to provide Yorkshire Futures and its partners with a greater insight into how the growth in high level skills and the utilisation of these skills by businesses can be accelerated and to understand which interventions are likely to be the most effective.

1.2 The first phase of the study examined the context for high level skills development in Y&H. It assessed how Y&H performs on key measures of high level skills, benchmarked the region against UK and international comparators, and reviewed the evidence on mechanisms to boost high level skills. The first phase report is available from www.yorkshirefutures.com

1.3 Whilst the analysis highlighted a diverse picture across sectors and sub-regions within Y&H, the overall conclusion was that demand for high level skills was muted. As a result, supply side policies, such as expanding higher education provision, were considered a necessary, but not sufficient, strategy to achieve a significant improvement in high level skills performance.

1.4 Underlying this broad conclusion was a recognition that a wide range of factors influence high level skills performance and characteristics. These factors comprise:

- Place, demography and migration;
- Institutional support (for instance the role of support agencies and universities);
- Sector, organisation and workplace (for instance business size, the design of job roles within companies and the presence of high performance work systems); and
- Skills, qualifications and occupational structure.

1.5 The second phase of the study seeks to apply the Realist Synthesis method (Pawson 2006) of evidence review to consider the efficacy of specific interventions and policy levers. Given the existence of the low skills equilibrium in parts of Yorkshire and the Humber, it was considered appropriate to consider company level strategies and policy interventions which seek to increase the utilisation and return to high level skills.

1.6 Application of the Realist Synthesis method requires a reasonably specific intervention to be identified. The typology of interventions developed through Phase 1 included measures to focus on skills utilisation and this was selected on the basis that there is evidence of elements of a low skills equilibrium across all parts of the region and this approach is therefore potentially applicable across a range of companies.

1.7 A number of programme theories are inherent in policies to boost skills utilisation. In order that the Realist Synthesis approach could be adhered to, a single proposition or programme theory was specified, involving incentives to boost skills utilisation amongst small and medium sized enterprises (SMEs) and looking specifically at the deployment of graduates by encouraging employers to implement graduate development programmes. Within this approach, a number of alternative theories have been considered. A summary of the approach is presented in Chapter 2, with a full method paper set out in Annex B.

1.8 At the start of the Realist Synthesis, it was anticipated that key factors for consideration would be:

- The most appropriate type of incentive to be used[1] – this may be cash, some other financial benefit, discounts on training or on other business services;
- Ability to target companies effectively;
- Ability to design an incentive scheme to ensure that the benefits are additional to what employers would have done anyway;
- The extent to which it is likely that incentives are used to maximise returns (e.g. stimulating productivity); and
- The extent to which negative impacts, such as other jobs becoming redundant in the organisation, are likely to occur.

1.9 To answer the research questions, the study draws on evidence of measures to boost skills utilisation using the Realist Synthesis approach. The initial evidence review suggests that this is limited, at least with respect to the effectiveness of broad skills utilisation strategies. Further investigation was undertaken to uncover evidence from individual projects, particularly linked to incentive schemes.

1.10 The remainder of this report sets out a review of whether initiatives to boost skills utilisation would achieve an improvement in firm competitiveness/productivity, and thereby increase the accumulation of high level skills. In doing so, it seeks to provide a set of policy implications for Yorkshire Futures and key stakeholders as well as an insight into whether the Realist Synthesis method of evidence review could be applied to other areas of economic development policy.

[1] Defining the specific scale and nature of the incentive is outside the scope of this study – for the purposes of the Realist Synthesis, a homogenous incentive type was assumed.

2 Method

Introduction

2.1 Realist Synthesis is an approach to reviewing evidence developed by Ray Pawson (see for example, Pawson 2006). The rationale for Realist Synthesis is based on two critiques: the first around the limitations of systematic reviews for understanding the complexities of the social world and policy interventions[2]; and the second around the limitations of traditional literature and evidence reviews used across the social sciences and public policy. Building on earlier work (see Pawson and Tilley 1997) and on approaches to social enquiry derived from critical realism (see Archer 1995, Bhaskar 1978 and Collier 1994), Realist Synthesis offers the prospect of advances in both synthesising evidence but also in understanding the complex relationships, or theories, which underpin policies both in their design (Programme Theory) and their implementation (Implementation Theory).

2.2 The study team have sought to apply Realist Synthesis to the broad field of high level skills but specifically to understanding the dynamics around high level skills utilisation and its outcomes in terms of innovation and productivity, and in particular the interventions (or incentives) which can be introduced to stimulate such processes.

Building on Previous Work

2.3 As the report from Phase 1 of this study (High Level Skills in Yorkshire and the Humber: Understanding the Drivers of Change) highlights, the form and nature of evidence on this subject is wide ranging. The report therefore included a conceptual framework to guide the understanding of the forces which shape high level skills in any given locality and a typology of the range of interventions, together with their focus, which may be used to shift the level of high level skills and improve their utilisation.

2.4 This earlier report outlines the broad principles concerned with high level skills drivers, notably the interplay between demand and supply side factors, the persistence of a low skills equilibrium in many parts of the United Kingdom, and the geographic distribution of high level skills. The concern here is with understanding, through Realist Synthesis, how specific interventions (*mechanisms*) around incentives and skills utilisation, operate in different environments (contexts) to derive particular results (outcomes).

Scope of the Realist Synthesis

2.5 **It is not possible to produce a full Realist Synthesis around high level skills**: rather our concern has been around understanding skills utilisation and incentives within the local and regional skills policy framework in the United Kingdom. We have not undertaken a full Realist Synthesis for two reasons: the focus of the research was seeking to be broad based examining an array of issues which determine high levels skills, that is we were not focusing on examining a single intervention; and following this, the study was designed as a pilot to reflect on the use of Realist Synthesis in reviewing economic development evidence. In addition to existence of the low skills equilibrium in parts of the region, the focus on skills utilisation and incentives was chosen because these were deemed interesting demand side issues on which there was limited evidence from projects

[2] Systematic reviews are used extensively in the fields of public health and medical research. Their strength lies in analysing evidence of the effects of different interventions and in particular where evidence is derived from research and evaluation using experimental and quasi experimental research designs. They are less appropriate in the fields of social and economic research where there is less use of experimental research designs.

evaluations undertaken by Yorkshire Forward and other Regional Development Agencies. Moreover, these were deemed areas where there may be scope for intervention in the future, if low levels of high level skills were to be addressed. Further to this, we seek to use Realist Synthesis as much as a demonstrator project to illuminate its potential for further evidence reviews.

2.6 The remainder of this section sets out each stage of the Realist Synthesis and how these were applied in this study.[3]

Realist Synthesis Stages

2.7 The Realist Synthesis approach of Pawson (2006) suggests the following stages are undertaken - at first glance similar to a systematic review, but differing substantively because of the emphasis placed on understanding causal processes as theories and the way in which rival theories are understood.

Stage 1: Formulating the Review Question

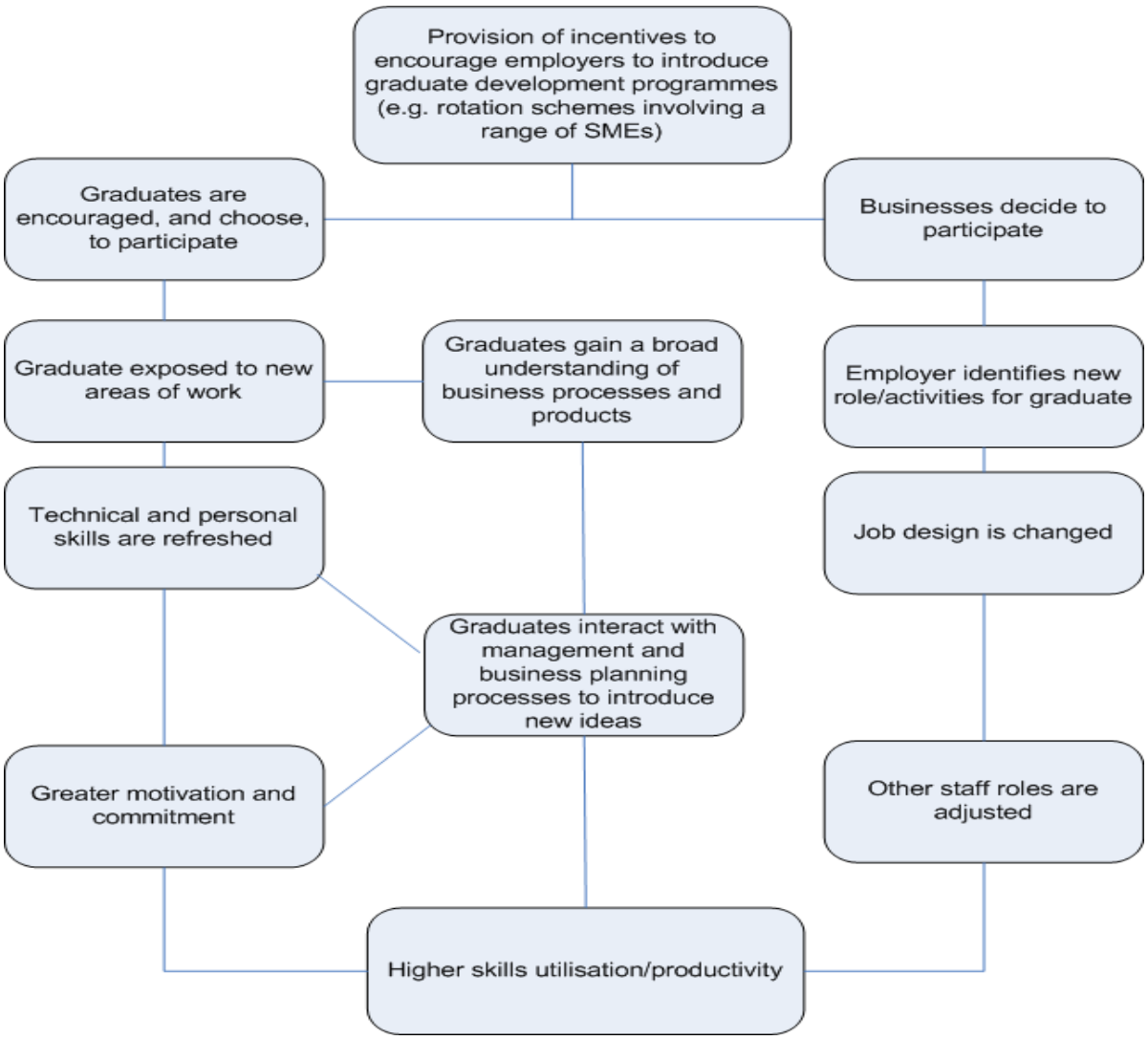
2.8 In this stage, we completed three tasks. Firstly, a map of the skills utilisation literature was developed. This involved undertaking simple searches for literature using the term skills utilisation. This yielded around 800 references of which the 100 most relevant were viewed and a sample of 20 articles chosen for review. A strong focus of many of the 20 articles was graduate employment and graduate skills utilisation. Although there are clearly wider issues around skills utilisation, **it was decided to focus on graduate skills utilisation as this would ensure a clear focus on high level skills**. In addition, the Yorkshire and Humber region has a national higher education role, being a net exporter of graduates. There is therefore strong potential to ensure that businesses within the region are able to recruit the most appropriate graduates and utilise their skills effectively.

2.9 Secondly, from the 20 most relevant papers we sought to identify a series of review questions which could guide further searches in Stage 2. This focused on the significance in the literature of understanding the interplay between the supply of *graduates* and different sectoral, national and institutional settings. Of note here was literature which stressed the balance between hard/technical skills and soft/personal skills.

2.10 Thirdly, an initial theoretical model was formalised which set out the range of theories involved in driving high level skills utilisation. A decision at this stage was taken to specify a model which focused on graduates and which understood employer and graduate related factors. The model is set out overleaf:

[3] The Realist Synthesis methodology is set out in more detail in Annex B.

Figure 2.1 Theory of Change for SME Graduate Programme



2.11 The model is used to structure Section 3 of this report where we summarise the findings from the Realist Synthesis, in particular considering: the formalisation of the problem, incentives to change the behaviour of employers, factors around the supply of graduates, and the interplay between the two.

Stage 2: Searching for Primary Studies

2.12 Throughout the study, we have used the Google Scholar search engine as the main mechanism for searching for articles. The strength of this approach is that it provides an effective mechanism to access literature in academic journals and its tests for relevance were found to be appropriate (hence the focus on the top 100 of 800 articles found in Stage 1). Its weakness is that its coverage of research reports published on government websites is partial.

2.13 Stage 2 comprised three main elements. Firstly, the application of standard search approaches (using terms focused of graduates and graduate development with incentives, productivity, commitment etc). The outcome of this stage was the addition of a further 37 references to the initial 20 references identified in Stage 1.

2.14 Secondly, other theories which might explain skills utilisation were identified, such as sectoral issues. Unfortunately this provided little additional material. However, one theme to emerge was 'graduate development programmes'. The benefit here was that they represent a specific mechanism (company recruitment and development of graduates) on which there is extensive additional evidence.

2.15 Finally, a more purposive searching strategy was used. What we were seeking to do here was to understand whether there was a rival or different mechanism which may account for the utilisation of skills. Our focus was on a theory termed 'high performance working' which has come to prominence in academic and policy literature as a key factor in determining the utilisation of skills. Searches on high performance working yielded 435 results and of these 8 were selected and added to the long list to be examined in the review of evidence providing a long list of 66.

Stage 3: Quality Appraisal

2.16 In this stage articles were firstly assessed for relevance using the following five broad tests:

- Concern with, or makes reference to, 'skills utilisation' in formal employment;
- Focus on high level skills and graduate skills/employment;
- Presents original empirical evidence;
- Focuses on an assessment of a programme or policy related to the theory; and
- The nature of effects such as firm performance, innovation or career development are considered.

2.17 A scoring system was established for the above and a relevance threshold identified: i.e. articles needs to be at least 70 percent relevant. The result of this was the long list of 66 articles was reduced to 20 articles.

2.18 Articles were then assessed for quality against three main criteria: the sources of evidence used, the ranking of the publication and the date of publication. Although articles were not excluded on the basis of quality, the rankings were retained for the further elements of the research. That is, there is growing use by academic publishers of bibliometric data which includes measures of article citations (in other academic articles and papers) and downloads as a measure of journal and article impact. Impact scores are then derived for each journal within its subject areas (e.g. economics, geography etc.) and these provide a ranking of academic journals. In our selection, we gave greater to weight to higher ranked journals.

2.19 It was notable that there was some divergence in the coverage of the 20 articles:

- The majority of publications (15) related to 'graduate development', mainly examining workplaces that are already committed to recruiting people who have completed higher education courses, and seeking ways in which to make the most effective use of their competencies;
- A small number (2) were specifically about the under-utilisation of graduate skills; and

- A few (3) focused instead on knowledge management and high performance working as a means of getting the best out of all staff, not just those with high level skills (although development of these forms an implicit part of the model).

2.20 A reflection on the evidence collected is that it addresses specific parts of a complex theory of change - and to some extent it may also have relevance to rival or even completely different theories of change: for instance, that location and demand side factors matter more than within-company interventions. The task of identifying evidence for all these areas outlined in the Theory of Change (see Stage 1) is beyond the scope of this study. As discussed in the conclusion to this section, a more appropriate stance is probably to seek to more narrowly define theories of change and context-mechanism-outcome relationships.

Stage 4: Extracting the Data

2.21 This stage involved three inter-related tasks: annotation (extracting data against original theories of change), collation (comparing data against each other to support or refute rival theories); and reportage (where evidence on each step of the Realist Synthesis is pieced together).

2.22 The focus for this section has been to test the model identified in Stage 1 and in particular to explore three main components: formulating the problem to be explored (primarily providing the context in which high level skills evidence is understood), understanding interventions with employers to increase skills utilisation; understanding graduate-oriented interventions; and finally the interaction between demand (employer) and supply (graduate) factors. The evidence around these is reported in Section 3 of this report.

Stage 5: Synthesising the Data

This section involves the following steps:

- Question the integrity of the original programme theory;
- Adjudicate between rival theories which might be at work;
- Consider the same theory but in comparative settings; and
- Compare official expectations (programme theories) against actual practice (implementation theories).

2.23 This stage is reported on in Section 4 of this report and the focus here is essentially twofold: to set the findings in the context of Yorkshire and Humber and to draw conclusions.

Stage 6: Dissemination

2.24 This stage primarily involved the task of reporting. It comprised setting out 'what has been found', but also provide some counterbalance to stress the relationships which underpin why certain interventions (mechanisms) work better in particular settings (contexts) to achieve (or not) certain results (outcomes). Finally, the analysis was challenged before final revisions were made.

Conclusions: Reflections on Realist Synthesis

2.25 The approach adopted in this study has been one very much geared to demonstrating the potential of Realist Synthesis to the evaluation and evidence review of interventions relevant to

regional development and skills: in this case high level skills. This is something of a departure from the traditional territory of Realist Synthesis which has been on healthcare and more broadly social policy. In Phase 1 of this research project considerable attention was given to understanding the drivers of change around high level skills and in this phase more traditional approaches to evidence review were used: notably literature reviews, case studies and descriptive analysis of secondary data sets.

2.26 The conceptual framework and typology of high level skills interventions identified at the end of the Phase 1 report highlighted the complexity of understanding high level skills and the myriad interventions which are made to influence both levels of high level skills and outcomes (for instance productivity and innovation). The following discussion provides a series of reflections and lessons for doing a Realist Synthesis in this field in the future.

Logic Chain and Theory of Change Issues

2.27 **Economic not social policy:** most realist syntheses to date have been conducted around social policy interventions (for example crime policy) or healthcare (for example practice development). Outcomes in those conducted to date have focused on what may be held to be immediate outcomes. An issue from the high level skills Realist Synthesis is that much primary evidence exists around for example graduate employment in firms in different sectors, and there is considerable secondary data analysis around wider issues around the graduate labour market. However, it is more difficult to make the leap from immediate business level impacts to impacts on the wider economy (for instance as measured by GVA or productivity).

2.28 **Complex and Elongated Logic Chains:** an issue related to this is the specification of logic chains, and a risk that these become overly complex and elongated - as a consequence, the power of findings is reduced. This issue is highlighted above in extending logic chains from relatively specific interventions in businesses through to general economy-wide impacts.

Understanding Context and Institutions

2.29 **Outcomes or Trends:** a further and related issue is around disentangling contextual factors. Phase 1 of the research and the specification of the problem around skills utilisation both point to the significance of longer term trends in high levels skills. An example here is around the expansion of higher education which has vastly expanded the supply of graduates to the labour market. Case based studies and wider modelling of the labour market point to the differential effects of this across firms, sectors and places: in some cases businesses have changed their employment structures to better exploit this whilst in other areas graduates are found to displace non-graduate jobs. The issue for Realist Synthesis is around understanding these trends and how they may explain a significant proportion of a particular set of outcomes (over the intended effects of an intervention).

2.30 **Context and institutions:** issues around low skill equilibrium, systems of innovation and geographic variation came to the fore in Phase 1 of the research. These factors provide the context in which companies work and their use of high levels skills. However, whilst they provide important context, it is difficult often to relate the activities within companies to the outcomes. As such they seem to present a barrier to taking Realist Synthesis further. An example here is around the challenge of lesson drawing from interventions in other countries and the question around to what extent these are wholly shaped by national systems of innovation and context. In Pawson (2006), he calls such issues 'outer contexts': nonetheless, their exploration and their impact requires the specification of a clear theory and intervention first. From this, it is possible to examine the effect of wider or outer contextual issues.

Specification of the Programme Theory

2.31 **Close Specification of Context-Mechanism-Outcome (CMO) relationships:** a key lesson from both previous realist syntheses and the research here was around the careful specification of CMO relationships and identifying an explicit theory of change. Whilst it was possible to review and assess an array of evidence across the field of skills utilisation, there is a strong case for narrowing the scope of the Realist Synthesis to focus on a theory or mechanism which can be readily specified.

Using Different Forms of Evidence

2.32 **What is Gold Standard Evidence:** unlike interventions in the medical research, the Realist Synthesis we have undertaken considers a range of evidence derived from large scale survey data, through to depth interviews and case studies. Each was found to have its place and informs the understanding of high level skills. Nonetheless, caution needs to be shown in assessing the relevant quality of evidence to ensure that specific research designs are not given greater weight than others. What matters is an understanding of whether they are appropriate to the research questions they were seeking to address. For instance, qualitative case study designs may be invaluable in illuminating a novel or unstable process about which there is little prior research.

Drawing Lessons

2.33 **Do not expect a 'silver bullet':** this may appear an obvious point but in a contested field around high level skills, considerable caution needs to shown in either throwing out received understanding of the operation of high level skills or completely accepting current practice. Realist Synthesis offers a different approach to understanding 'what works for whom in what circumstances and in what respects' (Pawson, 2006, p.74) for high level skills. Its iterative and collaborative nature implies that its conclusions are most likely to produce ‘subtle shifts’ and incremental steps aimed at refining or revising a policy or programme intervention, rather than fundamental change (ibid, p.101, p.169).

Applying Realist Synthesis and Cost Effectiveness

2.34 **Complementary or Contradictory Approaches:** whilst Phase 1 used an array of traditional review techniques, Phase 2 has piloted a Realist Synthesis and sought to demonstrate its potential. The findings from both suggest that they may best used in tandem, the first set to address more general and scene setting issues, the second to focus on much more specific CMO relationships. As we have indicated above, Realist Synthesis works best where programme theories, the theory of change, can be very clearly specified, and where the chain of causality is relatively simple and short.

2.35 In terms of making recommendations for the future, we would emphasise the importance of specifying an intended (ex ante) or undertaken (ex post) intervention to apply Realist Synthesis to. Ideally, Realist Synthesis can be used to inform policy formation and also raise important issues around implementation (implementation theories). Nonetheless, it must be emphasised that Realist Synthesis, and the demands it places on research and policy formation, suggest that it is a technique much more akin to systematic review in terms of resources requirements than to a literature review.

2.36 In particular, and as Pawson highlights, Realist Synthesis as with all properly conducted evidence reviews is a time consuming task. As he (Pawson 2006) argues:

> Realist Synthesis starts with a more complex question [or…] with a series of interlinked hypotheses. Search procedures are correspondingly intricate, and locating the apposite evidence is a prolonged task that stretches from spring (before the review question is fully

> framed) to autumn (when the synthesis is well underway). Put another way, Realist Synthesis, like any good empirical enquiry, feeds on fresh evidence as unfolds. Accordingly, it is useful to think of the search strategy for realist review as having four separate components, although even this implies a neatness and linearity not achieved in the hurly-burly of a real paper chase (Pawson 2006 83).

2.37 As such, Realist Synthesis is a time consuming and iterative activity. Evidence requires deliberation and theories require continued refinement. What has been possible here is to provide an introduction to Realist Synthesis. Such approaches may be discordant with the pressures to formulate and implement policies within short time scales. To further highlight this issues Pawson notes:

> When one is reviewing the vast literature associated with complex interventions, and if one admits all manner of empirical research, grey literature and even policy thought pieces as potential evidence, one is faced with an endless task that has, at some stage, to be arbitrarily terminated (Pawson 2006 182).

2.38 There are myriad complex and overlapping theories in operation around high level skills and skills utilisation in companies. The challenge is focusing on ones which may be most relevant and perhaps ones which policy can influence. The evidence presented here represents a start.

3 Boosting Skills Utilisation: The Evidence

Overview

3.1 This section sets out the synthesis of evidence on whether incentives to introduce graduate development programmes will ultimately lead to better skills utilisation and increased demand for high level skills. For the purpose of this exercise, the precise detail of such a programme has not been specified but the focus is on SMEs as they are less likely to have implemented this type of programme previously due to practicalities associated with business size and availability of necessary resources. Also linked to this point, a programme could be developed to operate across a number of SMEs. To achieve a good level of additionality, the focus should also be on businesses that have not already developed this type of scheme.

3.2 The type of programme envisaged is one that incentivises/supports SMEs to introduce/take part in programmes that support soft skills alongside technical skill development. Typical features of graduate programmes in large organisations include mentoring/coaching by senior staff (and in some case peers), formal projects and rotation/placement schemes that provide opportunities to gain knowledge and experience of different departments and business areas. Such schemes are numerous with examples from the literature reviewed here including those run by the Allied Irish Bank (Murphy, 2002) and BP (Nicholson and Arnold, 1989a; Nicholson and Arnold, 1989b). Within the public sector the Civil Service operates the "Graduate Fast Stream" with many other public bodies including local authorities having similar programmes.

3.3 At a national level, initiatives have been sought to develop graduate programmes across a range of sectors including the Graduate Apprenticeship Initiative (Murphy and Warmington, 2002) and the Integrated Graduate Development Scheme (Clarke and Thompson (1999). In some cases, graduate programmes are developed in partnership with the Higher Education (HE) sector with participants gaining additional qualifications and facilitating knowledge transfer between HE and businesses, for example the Graduate Apprenticeship Initiative (Murphy and Warmington, 2002) and the Irish FUSION project (Hegarty and Johnston, 2008). FUSION is also an example of a graduate programme that operates across a number of different SMEs.

3.4 The section follows the stages or steps identified in the programme theory, beginning with the evidence on the under-utilisation of graduate skills and the associated evidence on how organisations make use of employees' knowledge and expertise.

3.5 The programme theory (see Section 2) includes five steps around which the synthesis has been structured:

- Step 1 - Problem identification;
- Step 2a - From intervention to outcome – graduate;
- Step 2b - From intervention to outcome – employer;
- Step 3 - Intermediate effects on business processes; and
- Step 4 - Ultimate impacts on skills utilisation and productivity.

3.6 Each step comprises a number of sub theories (see Figure 2.1) for which evidence is presented below.

Step 1: Problem Identification

3.7 This short summary of the nature of the under-utilisation issue draws particularly on Clarke and Thompson (1999), Mason (2002; 2008), Nabi (2003) and Hogarth et al. (2007).

3.8 The extent to which graduate skills and competencies are utilised to the full by employers rests on a range of factors, some related to the nature of the work, some to the way in which workplaces or employers are organised, and some to wider economic and labour market conditions.

3.9 Following the increase in the number of higher education graduates emerging in the UK and their absorption into the labour force, there has generally been a protracted adjustment process on the part of employers in incorporating them effectively into their workplaces. A major part of this has been a search for ways in which employers can capitalise on the wider range of skills that graduates bring with them. Many employers have struggled to do this.

3.10 That said, the substitution of non-graduates by graduates has been prompted in many sectors by employers' rising demand for generic skills such as problem-solving and team working, and this has resulted in what is termed 'job upgrading'. This has been either at the behest of the employers themselves, or has been prompted by the graduate employee seeking to 'grow the job' as a means of stretching their capabilities. However, in many cases this has operated as a one-off rather than a continuous process.

3.11 At the same time, increased recruitment of graduates in some sectors merely reflects their greater ability to compete for jobs. In this sense, the increased supply of graduates has not occurred hand in hand with a commensurate growth in graduate jobs. This has prompted many to seek lower grade jobs, either as an entry point to the workplace, or as a temporary stop-gap while searching for a more appropriate post.

3.12 In both cases there appears to be under-utilisation: with the former it is a matter of untapped potential, while with the latter graduate recruits are seen as being over-educated or over-qualified.

Stage 2A: From Intervention to Outcome: Graduate

Theory 1 Graduate Take up

3.13 The first hurdle which the incentive scheme needs to overcome is **securing graduate participation of a programme to increase utilisation of their skills**. The synthesis has been specifically developed on the basis of participation on an ‘in work’ programme rather than a graduate recruitment or placement scheme. Participation may not necessarily incur a financial cost to the individual but will be dependent on a number of factors including motivation, flexibility and the trade off between financial and other rewards such as career progression and job satisfaction.

3.14 The relationship between these factors can be understood through the experience of graduates in non graduate jobs. As Mason (2002) shows, there is evidence of graduates in such jobs taking the initiative to ‘grow the job’ suggesting some at least are motivated to better exploit their skills to accelerate their own progression as well as benefit the firm. The hypothesis that graduates are highly motivated to do a good job is borne out by the results of a study undertaken by Arnold and Mackenzie Davey (1994a), even when loyalty to a specific firm may not necessarily be high. Few differences were found across sectors suggesting that different contexts yield similar results, albeit the respondents were participants in recognised graduate schemes.

3.15 Although the growth in graduate under-employment has led to an increasing interest in the extent to which graduates have actively chosen work that doesn't have the skill requirements or associated pressures of a graduate job, this phenomenon would appear to be prevalent amongst only a minority of graduates in this position. Increased competition for graduate jobs suggests that rates of graduate under-employment will rise as more take up lower skilled jobs by necessity and to build employment skills (Vasagar, 2010). This suggests both that there will be a greater number of potential graduates to engage and that the majority will be receptive to skills utilisation measures, albeit some initial screening might be beneficial.

3.16 Motivation is also driven by other aspects of job satisfaction and the extent to which expectations are being realised. There is a significant body of evidence that shows that the key drivers of graduate job satisfaction are linked to the nature of their job and its opportunities (such as interesting and challenging work, career development, training and development (CIPD 2006, Heaton et al, 2008)) rather than financial rewards. Given the lower salaries on average paid by SMEs in comparison to large firms, the low initial rewards of working in an SME may therefore act as a negative influence on motivation. The potential of a financial reward in the longer term will support motivation.

3.17 This argument is well supported by the evidence from traditional graduate development schemes. As Heaton et al (2008) and others show, graduates on a training scheme are more likely to feel their needs are being met in terms of career development, being given challenging work, coaching and mentoring, training and development and supportive management structures. Whilst the bulk of the learning may be on the job, graduates prefer formalised mentoring and coaching.

3.18 The efficacy of the programme theory is backed up by the literature on graduate under-employment. Nabi (2003) presents evidence that under-employed graduates have lower opportunity for skill use with lower levels of career and life satisfaction and lower salaries. Furthermore, these comparative disadvantages were still in evidence after graduates had been working for a number of years. Whilst some suggest that skills under-utilisation is a temporary phenomena, the weight of evidence indicates, however, that under-employed graduates have lower opportunity for skill use with lower levels of career and life satisfaction and lower salaries not just initially but even after they had been working for a number of years.

3.19 Overall, there is reasonably strong evidence that graduates will be motivated to take part in schemes that use and develop their skills and further their career opportunities. Particularly in a recovering economic climate, with strong competition for jobs, graduates will be motivated to increase their competitive advantage. It is also important to note that, most of the evidence reviewed relates to graduates already employed on graduate programmes and this may overstate the motivation of some graduates, particularly those in non graduate jobs.

3.20 As a number of studies highlight though, the graduate labour market has become much more fluid with greater self-management of their careers by graduates and greater mobility within this part of the labour market (Mason, 2002; Sturges, 2002; Doherty et al, 1997). These factors suggest that there may be a decreasing role for formal graduate programmes or at least that the potential benefits will be reduced – both for employer and employee - if graduates move on from a job quickly. Mobility in the labour market has particular potential to affect employers' motivation to invest in graduate development programmes. This is considered under Theory 2(b).

Theory 2: Coaching Mentoring and 'In-work' Learning

3.21 The next step of the theory postulates that **graduates will react positively to new areas of work, either on the job learning measures or effective coaching or mentoring.** Here the evidence suggests that the capacity of the receiving firm to get the best out of the individual is a dominant factor. This is where large firms are much better placed to ensure that an individual's skills are fully optimised – as Heaton et al (2008) and Graham and McKenzie (1995) emphasise successful programmes tend (inter alia) to build graduates' broad understanding of the whole organisation, involve jobs in several different functions, business units or even counties. A key success factor is to have effective 'receiving' managers for graduates (Graham and McKenzie, 1995). However, some studies find that SMEs can perform this function well. The FUSION project, for example, implemented across Ireland involved a three way partnership between SMEs higher education institutions and knowledge carriers (graduates). Graduates were placed within SMEs while undertaking a relevant masters qualification benefiting from a combination of technical and soft skill development through a blend of work-based and education based learning. Although some projects were weaker than others, Hegarty and Johnston's evaluation of the programme was positive, attributing success to effective partnership working with HEIs (Hegarty and Johnston, 2008).

3.22 There is a broad consensus on the importance of on the job learning and the role of the mentor and line manager in the process – Hegarty and Johnston note that "from the SME perspective, managing learning within the modern organisation requires leadership if not craftsmanship in order to embrace employee learning as part of wider organisational practices" (page 403). This emphasises the importance of building in a strong mentor and peer support element if graduates are to be retained and progress through the programme. Furthermore, Sturges et al (2002) finds a relationship between organisational commitment and mobility and suggests the benefit of promoting a virtuous circle of career management between graduate employees and employers.

3.23 The risk is that the graduate and participating firm will not see sufficient progress in the early part of the programme for a virtuous circle to be established. Here, the evidence indicates that some scepticism may need to be overcome – Graham and McKenzie (1995) emphasise that, with respect to graduate employment, "the first days weeks and months are crucial for setting down the pattern of what is to follow", whilst Heaton et al (2008) highlighted that some firms report that it can take 8-10 months for graduates to become productive and that intensive early training is needed to ensure that graduates are work ready and become productive more quickly. Without a clearly defined development path, there is the potential for the individual and firm to revert to low skills utilisation practices.

3.24 Assuming that the necessary support is in place, the evidence on the relationship between on the job training and skills development of the individual is strong. If average salary is a proxy for the return to skills development, the personal return to the individual is clear - graduates on graduate schemes are likely to earn more than those not on graduate schemes (CIPD 2006). This result is replicated across a number of sectors. This suggests that those that have had the career development benefits of a graduate programme are generally more productive and valued by employers.

3.25 However, an initial contextual issue raised by several authors (Sturges et al 2002; Arnold and Mackenzie Davy 1994a) is to question the traditional understanding of the graduate development programmes, with evidence found to suggest that higher levels of staff turnover amongst graduates, changes in organisational structures (from hierarchical organisational forms to team based systems) and greater graduate self-management have placed considerable pressure on the traditional

operation of the graduate development programme and its fast tracking of graduates into management positions.

3.26 Sturges et al (2002) explore two sides of the issue, around graduate self-management and around organisational commitment. The latter is considered here. The work by Sturges et al highlights that:

> "A number of studies have emphasised the importance of early experiences in the organisation (e.g. Louis, 1980), including, in particular, aspects of socialisation (Ashforth & Saks, 1996) and provision of training and development (Arnold & Mackenzie Davey, 1994a; Arnold & Mackenzie Davey, 1994b; Tannenbaum et al, 1991), for the establishment of organisational commitment. Organisational career management activities constitute a further form of work experience (Sturges et al 2002, p. 732)."

3.27 The authors' ten year longitudinal study with a cohort of graduates and employers found that:

> "However, formal organisational career management activities at time 2 [i.e. at ten years], and by this we mean activities such as training and development, are associated with increased organisational commitment and increased visibility activities, a form of career self-management. Also, informal organisational career management at time 2, typically taking the form of mentoring and help in establishing contacts, is associated with an increase in the overlapping career self-management activity of networking. Therefore, contrary to the expectation that career self-management will act as a substitute for organisational career management, there is a hint of a virtuous circle where one reinforces the other" (Sturges et al 2002, p. 742).

3.28 That is, graduate self-management and organisational commitment should not be seen as being mutually exclusive, and may indeed be mutually reinforcing.

3.29 Given the changed organisational and labour market context within which graduate employers operate, Sturges et al (2002) highlight the importance of selecting people with the capacity for self-management behaviour and suggest more informal types of support to encourage this without promoting the expectation of a 'career for life'.

3.30 Context becomes a more important factor, when the level of theoretical and practical learning which the graduate is required to absorb is considered. (Hegarty and Johnston, 2008) for example, highlight the differences between work based and education based learning and point to the value of co-operative learning where the learner receives a balance between theoretical and practical content. In some sectors, it is recognised that this places potentially a considerable burden on the employer to ensure that the graduate is satisfied. McDermott et al (2006) suggest that "employers need to assess whether they have the resources to plan, design and implement a graduate programme" (page 403). This dynamic is considered in more detail below.

3.31 The terms of the graduate rotation programme or similar incentive need to be carefully thought through. Traditionally, knowledge transfer is facilitated by team continuity and low staff turnover, where knowledge is transferred between individuals. For the graduate, there will be a need to achieve a balance between placements which enable this knowledge transfer to take place and a structure which secures their ongoing motivation and participation. An important contextual factor is the higher levels of turnover for graduate jobs which has the potential to erode employers' return on investment, and by implication, their motivation to train. This links to the next step of the theory around the influence on graduate commitment.

Theory 3: Graduate Commitment

3.32 The third step of the theory contends that the **exposure to new areas of work and interaction with the business planning or other processes leads to an uplift in the commitment of the participating graduate(s)**. Whilst the ultimate outcome is improved firm productivity, this step recognises that these gains will only be optimised if high levels of retention are achieved.

3.33 Staff turnover is one the biggest factors affecting the return on investment in staff/staff development programmes – a free rider aspect of market failure which is cited across the workforce development literature particularly for SMEs. As Beddingfield (2005) notes, churn amongst among graduates can be high with most (86%) graduate recruits leaving their jobs before the end of the third year. For traditional graduate development programmes, the value of the investment in the programme is not estimated to be positive until the graduate has been with the firm for at least six years. In some professions (such as law and accountancy) competition for graduate jobs is fierce due partly to the need to gain experience towards professional qualifications. Large numbers of graduates are recruited and paid relatively low salaries to undertake often routine work. Recouping return on investment is less of an employer concern and turnover is also lower. In fact, employers will themselves selectively reduce the number of graduates at the end of the programme. These schemes clearly operate to a different model and may benefit the wider economy by providing on the job experience within a graduate programme structure, the benefits of which may be reaped by their future employers.

3.34 There is strong evidence that poor career development opportunities, lack of clarity about progression, and a lack of interesting or challenging work leads to poor job satisfaction. Unsurprisingly, factors behind turnover of graduate jobs are a lack of career advancement opportunities, not having a clear progression route, and graduates not being recognised for the role that they play – in addition to other factors including work/life balance (Heaton et al, 2008). Graduate retention patterns do vary across employers. More traditional graduate employers, typically those with graduate development programmes, have been less affected. Higher rates have tended to be within the areas of newer graduate jobs and graduate recruiters.

3.35 The ability of any programme to retain graduate(s) is a key risk if the outcomes in terms of the accumulation of high level skills are to be maximised. Addressing the factors behind graduate turnover clearly has some capacity to ensure that graduates stay in post to provide business returns for their employers. However, as a group, Arnold and Mackenzie Davey (1994a; 1994b) found that graduates' commitment to their employer is not high and tends to decrease with time. Motivation on the other hand was found to be high among all graduates (these were all participating in a graduate scheme) and generally identified as "something that graduates bring with them".

3.36 A number of contextual factors are apparent. First, the wider state of the labour market, which will directly influence commitment levels. Much of the literature draws on primary research undertaken in a period of significant growth in higher order employment opportunities – a situation which does not apply now, or based on current forecasts, in the medium term. The ability of graduates to lever themselves into other opportunities will be more limited in a tighter labour market.

3.37 Second, graduate retention levels are likely to differ considerably by firm size. Much of the evidence reviewed is drawn for graduate development programmes involving large firms who are generally better equipped than SMEs to provide the necessary formal training and informal support in order to optimise the skills base of the individual graduate. There may be constraints therefore in the efficacy of the intervention if retention is not maximised.

3.38 Overall, the evidence shows that as a group, graduates are both motivated and have a generally low level of commitment to their employers. Generating motivation may not be a primary concern (although maintaining it is important) but low commitment is linked to high levels of turnover with the potential to minimise the return on investment (ROI) for interventions directed at graduates. However, mass participation in HE may have caused greater segmentation of the graduate group with larger numbers in lower skilled jobs and with potential for decreased motivation.

3.39 This suggests that the implementation of effective schemes can have very significant positive impacts on graduate retention rates and retention can be a key focus (as in the AIlied Irish Bank example Murphy, 2002). Overall the evidence suggests that it should be an important consideration when designing this type of programme although the wider labour market context will be an influential factor and retention may be a lower priority during economic recovery. A scheme involving a number of different companies, with graduates either in close contact or potentially being placed in different organisations may also raise particular challenges in this respect.

Conclusions

3.40 There is reasonably strong evidence that graduates will be motivated to take part in schemes that use and develop their skills and further their career opportunities. However, for the most part evidence relates to graduates already employed on graduate programmes and this may overstate the motivation of some graduates, particularly those in non graduate jobs.

3.41 The literature emphasises the value of developing soft skills (including business skills) to complement the more technical skills that graduates develop at university. There is evidence from a number of formal graduate development programmes (including the FUSION programme) that this does happen (Hegarty and Johnston, 2008). The effectiveness of this type of intervention is strongly linked to the presence of effective management skills within the business. This includes experience of effectively recruiting graduates. In their study of graduate employment in SMEs, Hart and Barratt (2009) found that more "strategic" firms tend to employ graduates frequently and are strongly aware of the benefits they bring and shape recruitment strategies accordingly. More "occasional" or "accidental" graduate employers will be less likely to do this, employing graduates on a more ad hoc basis.

3.42 As a group there is evidence that graduates are both motivated and have a generally low level of commitment to their employers. For some graduate employers, particularly those engaged in less knowledge based activities, retention may be a less important consideration. However, wherever investment in the workforce is made, retention is likely to attain greater importance. The implication is that retention should be an important consideration when designing this type of programme. A scheme involving a number of different companies, with graduates either in close contact or potentially being placed in different organisations may raise particular challenges in this respect as firms may worry about competitor poaching.

3.43 Although some studies show that remuneration is not the most important factor for graduates when making career choices it remains an important consideration (CIPD, 2006). If firms are less able to compete in this respect, their potential for retention is likely to be affected although greater competition for jobs may counteract this.

Stage 2B: From Intervention to Outcome: Employer

3.44 This section of the report explores the evidence around the role of employers in increasing skills utilisation. The focus taken is primarily on employer strategies for the employment of graduates.

The theory of change set out in the earlier section suggests that there are a series of key elements to this programme theory:

- Employers decide to participate in programmes (i.e. they take up opportunities to employ new graduates);
- Employers identify new roles and activities for graduates;
- Recruitment of graduates leads to the re-design of jobs within the employer; and
- The design of other (non graduate, lower skill) jobs are adjusted.

3.45 The outcome from each of these is that the employer makes better utilisation of skills and productivity is enhanced.

3.46 Of note here, and as is explained below, is understanding the causation and inter-relationships between mechanism and context is important. Furthermore, the following discusses evidence around the first three theories; insufficient additional evidence was found to illuminate the processes by which non-graduate employment is adjusted. The work previously highlighted by Mason (2002) on the impact of mass higher education of labour market processes, the under-employment of graduates and the displacement of non-graduates by graduates is of relevance here.

Theory 1: Employers decide to participate in programmes

3.47 **The starting point of the theory is that targets employers will be willing to engage in the programme, potentially facilitated by an incentive or other benefit.** The most extensive evidence here came from research into programmes which seek to place graduates in companies, typically SMEs. Examples include graduate link programmes such as Graduates Yorkshire[4]. Research by Hart and Barratt (2009) found that SMEs have imperfect or distorted information about graduates. The rationale for graduate link or placement programmes with SMEs is often to overcome such a problem. The Hart and Barratt research found that managers who themselves were graduates were more likely (70 percent of their respondents) than non-graduate managers (40 per cent) to employ graduates. On balance, these authors found evidence that graduate placement schemes do increase participation rates amongst SMEs.

3.48 However, there were also found to be a series of limitations to schemes which seek to increase employer participation (and in particular graduate placement approaches). These can be seen as context related factors:

- Hart and Barratt (2009) found evidence that graduate employers can be split into three quite distinct groups: 'strategic' employers who regularly employ graduates and see them as being instrumental for the company; 'occasional' employers who employ graduates less frequently, but when they do it is into 'graduate roles'; and 'accidental' employers, that is the employment of a graduate into a non-graduate role.
- An additional problem with graduate placement schemes is that they assume a graduate labour market which is located close to the university the student attended. Hart and Barratt (2009) find evidence that a growing proportion of students are likely to move, often in part to

[4] Graduates Yorkshire is a Yorkshire focused graduate recruitment service that involves a partnership with the universities

return home due to financial pressures. In this case, the HE based graduate placement scheme may require alternative forms of marketing to work or may not work at all.

- An issue discussed further and reflected in the Leitch Review is that demand for skills is a derived demand. That is, it is driven the requirements of employers' other objectives and market strategies, many of which will be around cost-based competition and low skills (the low skill equilibrium model). Moreover, there is evidence that this is spatially correlated i.e. the density of graduate jobs and higher skill employers varies considerably between sub-regions as discussed in the Phase 1 report.

3.49 Employer participation decisions, therefore, can be influenced by interventions such as graduate employer programmes, but more significant factors are around the return on investment an employer will achieve from graduate employment (and additional remuneration costs). For many employers, the return on investment cannot be satisfied, for the reasons outlined above. In particular, what may be seen as 'strategic employers' are often businesses operating in higher value added sectors where there is a requirement for higher skilled employees. The employment of graduates on an 'occasional' or 'accidental' basis is less likely to be linked to the requirements of a higher value added product strategy. This issue is explored further below.

Theory 2 (incorporating theories 3 and 4[5]): Employers identify new roles and activities for graduates

3.50 **The second theory explored is around the employer response to graduate employment, with a rationale that employers who more actively manage graduate employment (and in distinction to non-graduate employment) achieve higher levels of skills utilisation**.

3.51 There is an important contextual issue to understand here, before exploring the mechanism in more detail, namely the impact of 'mass' higher education on the functioning of higher-skills labour markets. On a positive note, Mason (2002) finds that there is evidence that graduate substitution for non-graduates has contributed to a job upgrading process in the 1990s. This has taken two forms: through what may be seen as a one-off upgrading of clerical and administrative posts in departments such as customer services and marketing, but also temporary upgrading, as graduates in lower paid positions take on additional responsibilities with the hope of securing better paid positions and promotion. Mason expresses caution in assuming that job upgrading will be a continuous process. Rather, he suggests that the burden of the adjustment to the increased supply of graduates has fallen more on graduates and to a lesser extent on employers. The outcome of this has been expressed through a divergence of salaries and career prospects across graduate labour markets.

3.52 Further research by Hogarth et al (2007) and following Mason's analysis of different types of graduate jobs suggest a typology of graduate occupations which includes:

- Traditional graduate occupations (e.g. established professions such as medicine or law);
- Modern graduate occupations (e.g. management and IT);
- New graduate occupations (e.g. marketing, occupational therapists); and
- Niche graduate occupations (e.g. retail management).

[5] In practice theories 2, 3 and 4 relate to similar processes. The sources reviewed did not provide distinct evidence for all three (with no specific evidence for the extent to which other staff roles are changed) making it more appropriate to consider the material under a single heading.

3.53 The implications of these typologies and the wider segmentation of graduate jobs by Mason provides an important context for understanding how employers have responded to a period of mass higher education.

3.54 This issue of the design of new roles has been extensively explored in larger companies, and in particular companies offering some form of graduate recruitment and development programme. Traditionally, the use of graduate development programmes has been seen as a way for companies to develop the 'next generation' of managers and leaders. An initial contextual issue raised by several authors (Sturges et al 2002; Arnold and Mackenzie Davy 1994a; Arnold and Mackenzie Davy 1994b) is to question the traditional understanding of the graduate development programme, with evidence found to suggest that higher levels of staff turnover amongst graduates, changes in organisational structures (from hierarchical organisational forms to team based systems) and greater graduate self-management have placed considerable pressure on the traditional operation of the graduate development programme and its fast-tracking of graduates into management positions.

3.55 As discussed under Stage 2a, Sturges et al (2002) explore graduate self-management and organisational commitment concluding that they should not be seen as being mutually exclusive, and may actually be mutually reinforcing and that the self management of graduate development is not a substitute for organisational commitment. Moreover, the study goes on to find that organisational commitment is responsive: that is, the more proactive graduates are in managing their careers and seeking opportunities, the more support they received. There were also interesting findings around the structure of graduate development programmes, and generally that they include training opportunities, mentoring support and are backed by appropriate remuneration. The findings suggest that organisational commitment (to graduates) makes some difference (over other factors including remuneration and graduate self management) in retaining graduates with strong self-management attributes in organisations.

3.56 Research by Arnold and Mackenzie Davey (1994a) focuses on the experience of graduates in their first three years of employment and uses a survey of graduates. In exploring organisational commitment, the authors find that:

> "the most important experience for commitment was development through work. The more of this experience graduates encountered, the more committed they tended to be. Also important, but slightly less so, were training quality, career clarity and work autonomy. These factors indicate that organisations buy graduates' commitment principally by helping them equip themselves for the future" (Arnold and Mackenzie Davey 1994a, p. 13).

3.57 Research by Murphy (2002) using a case study of a learning and development programme for graduates in the AIB Bank reports similar results; although this research also highlights the weaknesses of case study research in comparison to the Sturges et al, 2002, paper.

3.58 Both the Sturges et al (2002) and Murphy (2002) research were undertaken during a relatively buoyant labour market, in contrast to the Arnold and Mackenzie Davey research. This contextual factor will impact upon the implementation of graduate development programmes and other workforce development schemes in different firms. A less buoyant labour market will reduce the premium companies are willing to pay (through remuneration or a graduate development programme type programme) to retain graduates. Similarly, and more speculatively, graduates' behaviour may also change in terms of commitment to an existing employer.

3.59 A similar theme to the work by Arnold and Mackenzie Davey is around the evolution and trajectory of graduates into the labour market, and the response employers make to this. Nicholson

and Arnold (1989a) consider the entry of graduates into large multinational corporations. Their findings highlight that:

> "The effective management of graduates demands a subtle appreciation of their psychological adjustment and evolution, for it is clear that profound and irreversible changes in lives and personality arise from the complex interactions produced by entry, adjustment and subsequent experience of corporate life"

3.60 Again, this research is very much focused on large companies and is also now over 20 years old. Nonetheless the findings point to an important transitory period between graduation, through graduate development activities (often involving job change) to career development and management. However, as discussed below this shift in graduate employment and development is very much a shift in ideal type: it must be nuanced by employer, labour market, sectoral and geographical differences.

3.61 We also found limited evidence around the unintended consequences of graduate development programmes on the productivity and utilisation of skills of those in non-graduate roles. This is not to suggest that this is not an issue, just there was limited evidence.

Conclusions

3.62 The Realist Synthesis of skills utilisation strategies by employers has focused thus far on issues around 'causal mechanism' and 'programme theory'; less attention has been given to the context of this and evidence of outcomes in terms of productivity, innovation and GVA. In general, the contextual issues appear common to the theories outlined above and are therefore discussed as a group here. The main point was raised in the above reference from the Leitch Review: skills are a derived demand. This was reflected upon in many of the studies considered. For example:

- Graduate development programmes need to be considered in the context of a buoyant labour market (Sturges et al 2006);
- Remuneration of graduates should be considered before issues of job design (Arnold and Mackenzie Davy 1994a; Arnold and Mackenzie Davy 1994b); and
- Mass higher education has driven supply and demand responses which vary by sector, has led to a one-off upgrading of jobs in some areas (notably HQ administrative and clerical functions) and has largely shifted the burden of adjustment from employers to employees (Mason 2002).

3.63 The evidence which supports the operation of theories or mechanisms around employer participation, the configuration of employment, and the design of jobs should be understood in particular contexts. Interventions such as graduate placements need to be understood as mechanisms which overcome a particular information barrier or notion of imperfect information – but only to the extent that there is some form of latent demand which is not occurring because of imperfect information. Likewise, the scope for employers to redefine graduate roles in companies will be driven by their particular product strategies or market area. And finally, the evidence for the impact of job design, including high performance working on skills utilisation, is mixed: again, practices and processes of skills utilisation are immutably connected with wider corporate goals and historic levels of investment in skills, capital and innovative capacity.

Stage 3: Intermediate Effects on Business Processes

3.64 Stage 2a has generally concluded that graduates are likely to be motivated to take part in a programme that involves training/mentoring coaching and appear likely to enhance their future career prospects. The evidence is largely based on those graduates already involved in graduate development programmes and as such may underestimate motivation levels of graduates under employed, particularly those that have ended up in non-graduate jobs. The evidence that employers will be motivated to participate is much weaker and reflects their need to generate confidence in a clear return on investment. For the purpose of continuing the synthesis, it is assumed that both graduates and employers will participate.

Theory 1: Graduates gain increased understanding of business processes and products

3.65 **Stage 3 of the programme theory assumes that through participation in a (graduate development programme type) scheme, graduates will gain a better understanding of business processes and products**. There are different scheme components through which this could occur, principally including rotation/placements and through effective coaching and mentoring.

3.66 Firstly, Hogarth et al (2007) suggest that graduates' intrinsic strengths provide a strong basis for developing a good understanding of business products and processes with the potential for useful application within the business:

> "Most employers find graduates bring significant benefits to the business including a more critical and theoretical perspective and a greater capacity to be flexible and assimilate new things in addition to the more obvious specific skills in their subject or discipline". (page vi)

3.67 A number of sources suggest that successful schemes, which generate positive outcomes (such as progressing graduates to senior management) involve building the graduates' broad understanding of the whole organisation. The evidence is clear though that it is the specific design of schemes and their components that will determine whether this happens effectively.

3.68 Job placements/rotation schemes are generally implemented within large organisations but lessons from studies that consider these could be potentially applicable to a multi SME context. However Nicholson and Arnold (1989b) point out that placements can be negative as well as positive and may have very different reasons underlying them. A bad placement can be damaging for graduates' career development, job satisfaction and self esteem. The programme developed by AIB did not include a formal rotation element leaving this to the discretion of individual managers. Any placements had to be relevant and appropriate to assist the graduate's development of their role (Murphy, 2002).

3.69 The extent to which coaching/mentoring is likely to result in graduates' improved understanding of business products and processes will depend on management and mentoring skills. Many studies highlight the importance of management skills and commitment (for example: Arnold and Mackenzie Davey 1994a; Arnold and Mackenzie Davey 1994b, Graham and McKenzie, 1995; Hegarty and Johnston, 2008; Nicholson and Arnold, 1989a; Nabi, 2003). Overall, graduates prefer more formalised processes but these can involve staff that are only slightly senior (or have just been in post longer) to help with the softer/more informal side of organisational integration.

3.70 Formal projects are also sometimes used in large scale graduate programmes and featured in both the BP and AIB schemes (Murphy, 2002; Nicholson and Arnold, 1989b). Within the BP scheme this was acknowledged, in part, as a way to legitimise graduates repeatedly asking questions of staff

about how the business works. Again, while such projects can be valuable, and have the ability to generate a steep learning curve, there is clear potential for disengagement if the required work is felt by graduates to be irrelevant. As Nicholson and Arnold (1989b) observe:

> "The dislike of make-work is also implicit in the newcomers desire for a "real job to do". This is clearly essential…in helping graduates acquire a favourable image of themselves as competent professionals, and a critical first step to building long term future success."

3.71 Networking/group activities can be a further mechanism for generating inter/intra-organisational knowledge. Graham and MacKenzie (1995) suggest that graduates are group formers often treating work as an extension of university. There is potential to harness 'the power of the group' using it as a means to help new recruits to settle in and to generate awareness of other parts of the business/other businesses. Graduate networking can be encouraged through a range of measures including social events and photo books and may have very long term business benefits. This research highlights that the network of old contacts remains for many years. Again the context for the evidence is large organisations and some interventions will have more limited transferability/different benefits than others.

3.72 The clear message is that there is evidence of a range of ways in which graduates can be encouraged to gain better understanding of business products and processes but that it is scheme specifics rather than the effectiveness of any particular component that will generate successful outcomes.

Theory 2: Interaction with management and business planning processes to introduce – and implement - new ideas

3.73 Assuming development of an appropriate intervention / set of interventions and positive outcomes with respect to increased business knowledge, the next part of the programme theory assumes that **graduates' technical skills, analytic problem solving skills and their understanding of business products/processes will materialise into the development and implementation of new ideas with the potential to improve business competitiveness**.

3.74 In support of this, a study of graduates working for BP, Nicholson and Arnold (1989b) found that three quarters of the sample were able to provide specific examples of innovations that they had enacted, ranging from minor changes to the initiation of major projects. The study does not attribute this directly to the programme but it does highlight the potential for this to happen – albeit the evidence is from a very large organisation. Identified success factors include instilling self belief in graduates as well as the belief that an organisation is malleable. Where businesses do not have an existing culture of absorbing new ideas from the bottom-up, the potential for this to occur in practice may be much more limited.

3.75 Effective networking may also generate long term business impacts. Graham and McKenzie, (1995) quote one manager who observes that the network of old contacts remains for many years. Although examples were from large single organisations, the study describes networks across sites, business streams and even counties. There may be potential for inter-business networks of graduates as part of a wider scheme with potential to facilitate wider business networking.

3.76 It should be noted that graduate group forming can have potentially negative consequences and prove divisive between graduates and other employees, particularly if graduates are perceived to have substantial benefits. There is some evidence of this occurring within SMEs participating in the FUSION programme and this was largely linked to substantial training and development opportunities,

clearly much valued by the SMEs themselves but which it was not practical to offer other staff (Hegarty and Johnston, 2008). Also, where a graduate group becomes very close knit it can lead to a 'them and us' culture in some firms (Graham and McKenzie (1995)). In a situation where the express intention is greater receptivity to graduate skills and ideas, this would be counterproductive.

Conclusion

3.77 There is little direct evidence in the sources reviewed to measures the extent to which graduates increase their understanding of business processes and products through participation in a graduate programme. Rather it tends to be a core objective of most graduate development programmes and is discussed in a more general sense in the context of the overall programme. Key findings are that placements do not always have positive impacts and need to be carefully devised and effectively implemented.

3.78 There are also other ways of ensuring that graduates have raised awareness of the wider organisation (or potentially other organisations), for example, by ensuring wider interaction with other staff. One firm recognised that setting formal projects encouraged this and networking with other graduates but there may be other ways to achieve the same aim. Networking with other graduates / relatively junior staff can also have positive impacts. In summary, although the potential for graduates to gain exposure to wider working practices is clear, how this is best achieved is less obvious but is likely to involve an approach tailored to specific organisations and individuals.

3.79 In terms of the potential for graduates to generate innovation within an organisation, one source gives this considerable attention. The BP study (Nicholson and Arnold, 1989b) does show that in the right circumstances, graduates ideas are taken on board at a range of levels. However, there is little indication from this set of literature about what business models work best to encourage and absorb graduates' ideas. Some studies allude to the value of networking/developing long term relationships and although there is potential for innovation, the evidence base is limited.

Stage 4: Ultimate Impacts on Skills Utilisation and Productivity

Theory 1 Skills utilisation to boost business productivity and competitiveness

3.80 **The final step in the programme theory postulates that greater skills utilisation will directly lead to a sustainable increase in business competitiveness, as measured by productivity per employee.** Assuming this increase is secured, the inference is that it will lead to stimulate further investment in innovation or workforce development.

3.81 There is a body of literature about the implementation of High Performance Working Practices/Systems (HPWP/S) to improve the productivity and competitiveness of businesses. Although a generic term not specifically applied to graduate programmes, there are many similarities between the HPWP and the typical components of graduate programmes. As such graduate programmes can be viewed as measures to develop the capacity for HPWP among this group. Particularly as there is limited evidence about the impact of graduate programmes on skills utilisation and productivity, the research into the implementation and effectiveness of HPWP provides a useful source of evidence for considering the likely impact of graduate specific measures.

3.82 Sung and Ashton (2005) for the DTI/CIPD conducted a study involving qualitative research with a sample of companies from the Sunday Times '100 best companies to work for'. The aim was to examine how they implement HPWP to 'leverage links between work practices and outcomes'.

The study also collected information from a range of other businesses via postal questionnaire to look at the application of, and outcomes associated with, HPWP more generally.

3.83 The HPWP assessed were grouped into three "bundles".

High Employee Involvement Practices	Human Resource Practices	Reward and Commitment Practices
• Information dissemination; • Staff surveys and suggestions schemes; quality circles / total quality management; and • Self-managed teams/cross function teams.	• Appraisal and feedback processes; • Intelligent recruitment processes; • Training and skills development programmes; • Structured induction; work (re)design; mentoring; • QA standards; and • Use of business excellence model.	• Performance pay/profit sharing/share options for some/all; • Flexible job descriptions; • Job rotation; • Flexible working; and • Benefits (such as health policies).

3.84 The authors note that it was difficult to assess financial impacts on businesses through the survey as most respondents chose not to submit financial information. The findings from the quantitative survey are therefore based on respondents' rating of organisation outcomes resulting from implementation of different HPWP. The study demonstrates correlation with a range of positive outcomes and shows that implementation of different HPWP are effective at generating different outcomes for businesses. Some outcomes (including staff satisfaction, motivation, commitment, leadership quality, career opportunities, communication, teamwork, involvement, and innovation) were positively correlated with all three types of HPWP. Staff turnover is negatively correlated with High Involvement practices level but less (not at a statistically significant level) with HR and Reward and Commitment practices.

3.85 To understand the relationship between HPWP and improved productivity / increased value of firms' business, it is of note that there is a strong relationship between all three HPWP types and creation of innovation/new ideas. There is a particularly strong relationship with reward and commitment practices. There is also a strong relationship between competitiveness and HR and Reward and Commitment practices but not with High Involvement.

3.86 The sectoral analysis shows that to generate innovation/new ideas outcomes:

- The Manufacturing sector use all three types of practice;
- Business Services use Human Resource Practices and Reward and Commitment practices;
- Financial Services use High Involvement and Reward and Commitment Practices; but
- Within Wholesale and Retail none of the HPWP are associated with innovation/new ideas.

3.87 For achieving competitiveness outcomes:

- The Manufacturing sector uses Reward and Commitment practices;
- Business services use Human Resource and Reward and Commitment practices; but
- None of the HPWP are associated with increased competitiveness in either Financial Services or Wholesale and Retail.

3.88 The findings show that different business practices are needed to achieve different outcomes within different business sectors. Sung and Ashton (2005) observe that it is often the way that HPWP are implemented together to generate a higher level of performance. For example, Quality Circles are more effective when supported by wider employee involvement practices. The study also found that businesses often have practices that "seem similar to those identified as HPWP but may not be implemented in a way that genuinely encourages HPW. It requires holistic thinking about the links between practice and outcomes" and the authors suggest adherence to the following principles:

- That senior management leads the process and develops a strong supporting culture;
- That the appropriate people management policies are consistently and effectively applied; and
- That the high performance organisational practices are clearly linked to organisational objectives and business goals.

3.89 While Sung and Ashton's findings generally support the potential for HPWP to deliver competitiveness outcomes, the authors note that HPWP have not generally been developed as a system but are often a consequence of the founding principles of the individual companies. While this does not make their implementation any less effective it does raise questions about transferability of these approaches to other contexts. Drawing on a study of ST50 best business to work for, focused on implementation of HPWS in SMEs, Drummond and Stone (2007) suggest that:

> "the effective establishment and operation of HPWS depends not just on understanding the nature and composition of the bundle, but equally on appreciating the roles and significance of a range of less tangible, but nevertheless crucial, features of the system as a whole. Effective policy formation necessarily depends on a fuller understanding of how HPWS function and what is that gives them coherence and significance. In this regard we see a central significance to the organisational culture, shared values and norms of business, that exist in the Sunday Times top 50 businesses. Because of this we are sceptical of policies based on the premise that HPWP, defined as bundles of specific practices can be implanted in an instrumental manner without regard to other factors." (page 204).

3.90 Research by Mason (2008) explored the utilisation of skills in relation to the market sector companies operated in, and in particular whether this was Higher Value Added (HVA) or Medium Value Added (MVA). Four very different industries were examined: two manufacturing sectors (plastics processing and commercial printing) and two in services (logistics and general insurance). Average value added was used as a standard measure of employee productivity and Mason was able to show that this was highly correlated with the percentage return on capital employed - and therefore average value added per employee is a meaningful performance measure for the majority of firms in the study. Mason was able to demonstrate that there was considerable variation in the performance of firms within each sector: HVA firms were found to have invested most heavily over time in physical capital, equipment, skills and innovative capacity. As Mason argues:

> "these superior resources have served as inputs to the dynamic capabilities required to respond to competitive pressures by developing new products and processes and successfully targeting new markets … These disparities between HVA and MVA firms reflect past strategic choices made by managers within those firms which have led to marked differences, not just in the quality and quantity of production inputs but also in the quality of organisational routines and processes that develop over time in each firm.' (Mason, 2008 p. 37)".

3.91 Mason's key conclusion is to question the potential for transferability of practice from HVA to MVA firms. However, these differences notwithstanding, he also concludes that skills utilisation in HVA and MVA firms is of second order importance in terms of performance to issues of market uncertainty, capital availability and skills availability.

3.92 Research by Faggian and McCann (2009), places some of these issues in the geographical context of the United Kingdom, and in particular the inter-regional flows of graduates. The findings cast additional doubt on the potential of regionally based approaches to competitiveness. For example, the authors:

> "find no evidence of any role played by small firms in regional innovation. Our results are in stark contrast to the 'learning regions' and 'knowledge regions' literature in which small firms are a central tenet of the hypothesised innovation mechanism (Faggian and McCann 2009, p. 330)".

3.93 However, some caution should be exercise in interpreting the Faggian and McCann paper. The authors use patents and patent applications to the European Patent Office as the proxy for innovation in their model. There are two main drawbacks with this data: patents are a limited measure of innovative activity; and patents tend to be made by the headquarters of large firms. There is therefore an in built bias towards central regions. Nonetheless, the authors raise important doubts of economic development approaches which downplay the role of demand side and migration factors.

3.94 In contrast, "human capital inflows are more important as an explanation of high technology innovation performance, than for the innovation performance of all industries" (Faggian and McCann 2009, p. 330). That is, high performing regions may not necessarily be 'learning regions' but just effective in attracting learned people. As Faggian and McCann (2009 p. 331) conclude: "our results imply that this argument is generally applicable to the regions of Great Britain".

Conclusions

3.95 The material reviewed provides credible evidence to show that HPWP do have a wide range of positive business outcomes including competitiveness and innovation/ideas. The HPWS/HPWP literature has no specific focus on graduate development schemes or interventions and can not, as such, provide robust evidence for the implementation of a graduate focused mechanism delivering performance outcomes. However, the HPWP and the types of outcomes that they are shown to generate, bear close relation to the composite parts and intended outcomes of most graduate programmes. As such graduate development programmes can be viewed as comprising HPWP for graduates suggesting that the lessons are highly relevant and that there may be potential to generate performance outcomes from graduate interventions.

3.96 The guiding principles for implementing HPWP effectively resonate with the findings from the more graduate focused literature, highlighting the importance of effective management, consistent (but flexible) application and clear alignment with organisational goals. However, some research

suggests that these will be difficult to transfer/replicate in environments that have not developed from a High Performance / High Value added basis. Mason's (2008) work reinforces this message with a particular focus on the importance of firms' value suggesting that the potential for transferring successful business practices from high value added to low value added firms is limited. This is a critical consideration for the study given its fundamental focus on skills utilisation to boost competitiveness.

3.97 There are a number of other factors which may limit the application of this type of approach to boost competitiveness through skills utilisation:

- Problems of participation: participation in graduate employment schemes tends to be by firms already employing graduates in management positions, and who would employ graduates regardless of the support available. Other graduate employers will need to be persuaded that there will be a return on their investment and could involve substantial subsidy. The evidence reviewed did not reveal any additional factors which may influence this (for instance marketing programmes).

- Problems of Graduate Migration and Inter-Regional Flows of Graduates: some concerns are expressed with demand side approaches to build innovative capacity in small firms. Inter-regional innovation differences are explained more by graduate migration and far less by the role of small firms.

- Changing Graduate Labour Markets and Mass High Education: there is some general evidence that graduate employers are shifting the onus of graduate development onto graduates/new employees. However, evidence around the persistence of graduate development programmes suggest that this remains in a largely stable group of larger companies: rather graduates are being employed in a more diverse array of jobs and that in many cases these are in traditional non-graduate roles (i.e. there is persistent under employment).

3.98 There are clearly considerable barriers to implementation, some of which relate to fundamental issues within the UK labour market and have a considerable bearing generally on the possibility for specific interventions around employer incentives for skills utilisation to effect wider economic change.

3.99 It is recognised that the wider structural factors including the presence of a low skill equilibrium present a challenge for better skills utilisation in lower value businesses. Whilst acknowledging that demand for skills is derived and that HPWP are not easily transferable, there remains a case for intervention. There are clear opportunities to learn lessons from those businesses that use HPWP to generate strong business outcomes. The evidence does suggest that implementation of an "in work" graduate programme for SMEs is one way that these lessons could be channelled, principally to better utilise graduate skills but with the potential for wider implementation of these practices within participating firms. This would replicate the commonly used approach of using an initial incentive to facilitate wider engagement.

3.100 The available evidence base has reinforced the importance of context but has proved too limited to make a full assessment of contextual enabling factors or barriers. It has, however, highlighted the following points:

- Graduate schemes can work well in SMEs and have been shown to work across a number of different SMEs but the associated costs are likely to be high. The annual cost of the

FUSION project was in the region of £45,000 per graduate with only £11,000 of this met by the business.

- From the limited evidence available on implementation of HPWP in different sectors, the Wholesale and Retail sector derives less benefit from HPWP than other sectors.

- Management capacity within businesses will be an important factor in success – although this type of intervention also has the capacity to boost management skills generally and this may be a significant secondary outcome.

3.101 Overall, the material reviewed is clear that with respect to graduate schemes and HPWP more generally, it is the way in which interventions are implemented that is important. As such they should be designed within a holistic perspective of the organisation and its wider process and strategies, with a clear view of what the objectives of the intervention are and with regard to the learning needs of the individuals involved.

4 EMERGING POLICY IMPLICATIONS

4.1 The preceding analysis has set out the potential efficacy of interventions to enhance the deployment of graduate skills as a means to boost skills utilisation and in-firm productivity, thereby increasing competitiveness and the demand for high level skills. Overlaying this analysis with the conclusions of the Stage 1 review of the Y&H context, a number of policy messages begin to emerge.

4.2 Before these are put forward, it is important to reiterate the conclusions of the Realist Synthesis, particularly the strength of contextual factors in influencing the potential success of individual interventions on skills utilisation. A note of caution is recommended, therefore, in interpreting the implications.

4.3 First, the evidence has shown that the segmentation and targeting of the company base will be crucial to the scale of potential outcomes generated - understanding whether firms are seeking to shift into High Value Added market segments (desire/interest) and their capacity to do so (assessment/targeting). Without going into specific sectoral differences, it is evident that there is a trade off between a narrow focus on working with firms who already generate medium to high levels of value added and a broader targeting strategy. The former approach (which would see a focus placed on the Leeds City Region and York and North Yorkshire) would potentially lead to a larger accumulation of high level skills regionally, but may also grow intra-regional disparities. The latter approach is more equitable but less likely to narrow the gap in the region's performance on high level skills.

4.4 The second key message relates to the importance of understanding the graduate labour market in the region, and the increasing segmentation between those in non-graduate employment who are using it as a stepping stone, those who are able to grow their job and those who enter a traditional graduate role. This segmentation is reflected in the levels of staff turnover and the consequent returns to the employer of investing in skills development. A focus on a narrow segment of the graduate cohort would be appropriate. This could be potentially achieved through the initial screening of graduate candidates prior to acceptance on to any scheme.

4.5 The difficulties in securing employer commitment came out strongly in the synthesis. Much of the evidence highlighted the importance of graduate rather than employer adjustment, linked to the focus in UK policy on supply side interventions. The lack of success in transferring skills utilisation or high performance practices from high value added to low value added firms highlights the barriers to improving competitiveness and productivity by creating graduate specific roles. Aligning skills utilisation with the company's long term growth strategy is a pre-requisite.

4.6 In the absence of regulatory or other levers, therefore, the onus falls on subsidies and other incentives to secure behaviour change within the region. In designing such a scheme, careful consideration would need to be given to minimising deadweight alongside balancing the firm's return on investment with that of the public sector. An employment bond or similar tool could help to retain employer motivation.

4.7 The fourth major policy lesson relates to intervention design and the range of factors which are critical to the achievement of positive outcomes. Mentoring, peer support and the quality of the receiving manager were three of a number of success factors which are integral to the success of the proposed intervention. Implementation of a programme needs to be accompanied by these complementary factors, otherwise impacts will be sub-optimal. There may also be implications for non-graduate skills utilisation through the displacement effects on existing non-graduate employees – the evidence reviewed for this phase did not, however, identify any such negative outcomes.

4.8 Finally, the study has generated a number of lessons on the wider applicability of the Realist Synthesis method in regional policy making. Our experience suggests that if Yorkshire Futures or partners were seeking to apply the approach again, a much narrower intervention type should be selected for which a body of comparable evidence exists. In this way, the likelihood that precise conclusions emerge will be maximised.

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ANNEX B REALIST SYNTHESIS METHOD

Introduction

This short paper supplements the methodology section in the main report detailing the approach taken at each stage of the Realist Synthesis. Section 2 sets out the different stages in a Realist Synthesis while Section 3 explains how each stage was undertaken for this study. As explained in the main report, the Realist Synthesis undertaken was a scaled down version of the recommended approach due to available time and resources.

Stages in a Realist Synthesis

Stage 1: Formulating the Review Question

The key focus here is on understanding the theory which underpins an intervention. This should not necessarily assume a logical linear path to achieve outcomes; rather it should give weight to the role of agents (their capacity, their interaction etc) and how they may interact with their context. Questions should thus have a strong emphasis on explanation. This requires a mapping of the territory (the conceptual framework and broad evidence review are examples of this), prioritising review questions and accepting that interventions may have a long sequence (lots of intermediate steps) and finally Formalising a model to be tested - this is not necessarily a simple linear model, but rather assumes that social economic interventions may be inherently non-linear. The typology of high level skills interventions provides some further mapping of the territory.

> *Example: the typology of high level skills interventions identifies incentives which may be offered to employers to invest in skills. This appears a sensible intervention: it responds to an acknowledged deficit, can be seen to be addressing low skill equilibrium, and works on the demand side. Implementation may assume that companies can be effectively targeted and some screening put in place to ensure that the incentive does not displace what they may have done already. Here, however, implementation gets more complicated: it also assumes incentives are spent to maximise returns (e.g. stimulating productivity), that the newly trained staff member remains with the organisation, and possibly that the new skill does not lead to other jobs being deemed redundant in the organisation (or at least that it stimulates further demand for training and job redesign).*

This is a brief example of the use of incentives to stimulate the high level skills in employers. Quite quickly it is shown that implementation may be far more complex than originally intended. Evidence review needs to respond to this.

Stage 1: Formulating the Review Question		
1.1 Mapping the territory	**What does this mean?** Skills utilisation strategies are one mechanism amongst many for increasing workplace high level skills. But it is very important to discuss what is meant by 'skills utilisation': what form do they take? How are they used? Focus should be on Employers and utilisation, high level skills and utilisation, and more generally 'utilisation' (and inducements).	**The Task:** undertake a preliminary search around skills utilisation (using google scholar and other search engines). **Outcome:** A list of references with very short synopses; a summary matrix on skills utilisation; and a long list of review questions.

Search results:

Google scholar was used as the main search engine. Search terms included "skills utilisation" and "skill utilisation" (whole phrase searches conducted only generated 264 and 533 references respectively. The top 100 references for each were viewed and articles chosen based on a simple assessment of relevance (e.g. skills utilisation in different sectors, under utilisation of graduate skills retained). Note that skill(s) utilization not used as a search term at this stage. Twenty one references were identified as of some relevance to the study in a broad sense.

"Skills utilisation" and "incentives" were also used as a search string but this tended to generate articles on incentives to employees and graduates, rather than to employers.

Initial reflections on references generated:

Scope of material: the articles were generated from an array of academic disciplines and fields of study, including: psychology; social policy and welfare; labour market economics; training and education; personnel and HRM; business and management; small business; technology studies; and politics/political economy.

Methods: the methods used vary considerably: case studies and reviews, economic and econometric modelling; and surveys conducted in different ways and of differing populations. The review articles and some of the other articles may also provide a rich seam of additional references to follow up.

Date of publication: all articles published from 1990s-present and largely reflect period of publication on the web. No preference in the search was given to the timing of publication although clearly in the later analytical stages some weight should be given to particular time-bound contexts (e.g. use of ICT or wider economic conditions) as well as perhaps the ill-conceived assumption that policy instruments and interventions have become more sophisticated over time.

1.2 Prioritising Review Questions	**What does this mean?** The focus here was on identifying central review questions (working hypotheses) which explain how incentives may drive high level skill formation in employers.	**The Task:** there were two options: someone to lead on identifying review questions or to conduct this as a team based activity facilitated by one team member (by email or in a short meeting). The approach taken was for ekosgen to lead through means of an internal team meeting. **Outcome:** A list of review questions against different hypotheses.

Review Questions:

The over arching question for the review was identified as:

What are the different theories of change which may be in operation in relation to incentivising skills utilisation? Literature review highlights the interplay between supply (of graduates typically) and employer demand and utilisation across different sectoral, national and institutional settings?

With a number of subordinate questions identified:

- What are the policy levers which may influence skills utilisation?
- What are the employer strategies which determine/shape skills utilisation?
- What are employee responses to skills utilisation measures?
- What processes will link skills utilisation to increased productivity?
- Will there be negative consequences of increased skills utilisation?

1.3 Formalising a Model	**What does this mean?** The focus here was to develop and articulate different theories of change which may be at work. This includes working through the steps in a causal mechanism from incentives to high level skill utilisation	**The Task:** Preparation of a series of theories of change identifying causal mechanisms (mechanism-context-outcome). **Outcome:** A short paper outlining a series of causal mechanisms (with standardised diagrams as appropriate).

Initial reflections on content of references (e.g. types of theories and causal mechanisms discussed):

- There were various sectoral differences but the over-riding message was around corporate strategy to remain competitive (**so skills utilisation for a few**). There were some interesting findings around graduates over-qualified for positions, not well paid and companies with **few incentives to change the status quo**. HE is a screening mechanism.
- More reflective pieces argue that employers could do more to make **better use of graduate labour** (a focus for many studies because they are a large cohort), but **limited empirical data** on actual strategies.
- The literature tends to have a **supply-side focus**, typically reflecting the dominant policy orientation.
- **Qualifications-skills change-utilisation is seen as a complex relationship** but there is also need to be able to anticipate changes and build a responsive institutional framework/system of provision.
- **There is a common finding of skills under-utilisation in the UK.**
- **Identification in the UK of the fastest growing areas skills supply (e.g. ICT generally) but one effect of this is the removal of wage premia.**
- Employers' expectations of graduate skills have grown and outpaced reality of job readiness of graduates. There is some evidence of sectoral/occupational variation and limits on how job ready graduates can be - employers seem to avoid responsibility by following low-cost strategies.
- **Work organisation and job design are seen as important in some occupations (e.g. engineers)**. If this is poor, the argument goes, then skills will not be fully utilised.
- There is an argument that skills utilisation (of formal skills) requires softer skills (e.g. communication, team working, networking).
- There are some arguments around the role of relationships between employers, employees, professional bodies and representative bodies (e.g. employer associations and trades unions).
- There are some findings that High Performance Working does not increase satisfaction amongst high level workers.
- There is some question of the strength of **skills-competitiveness** linkages with some highlighting weakness of available levers on companies - especially multi national companies - to alter trajectories.

Formalising a Model

The Phase 1 study concluded that a low skills equilibrium was prevalent in parts of Yorkshire and Humber, implying that a focus on increased supply side interventions may not be appropriate. Significant challenges were identified with increasing demand for high level skills, with incentives related to skills utilisation having the potential to do so by improving business processes with the existing workforce.

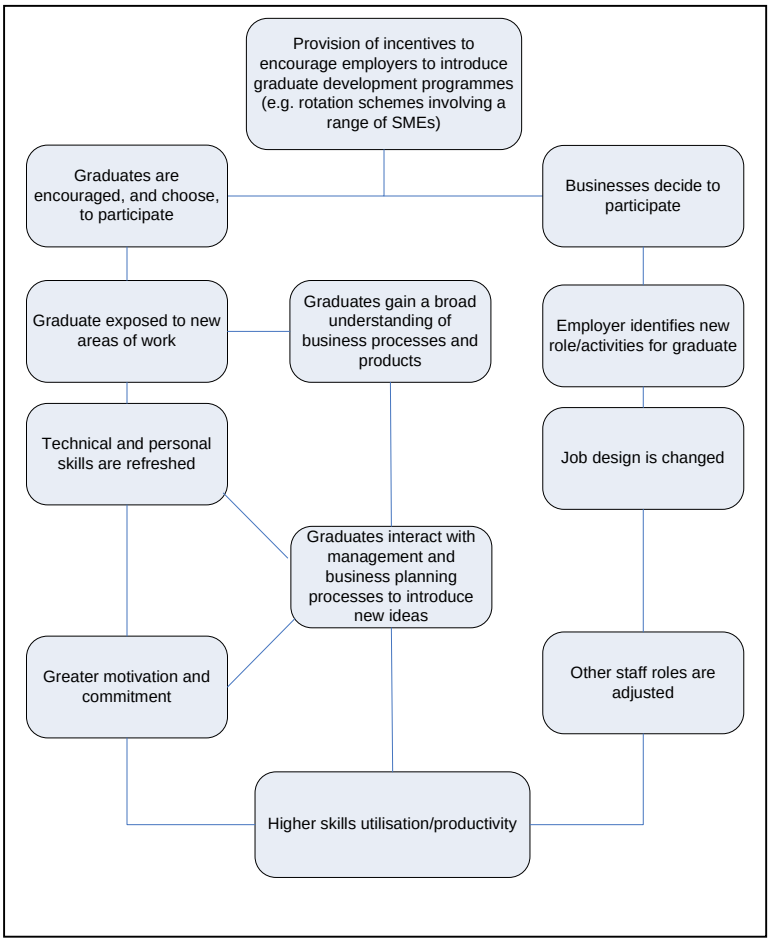
The initial evidence search generated a range of theories or mechanisms which might be relevant. A common theory related to utilisation of graduate skills. Specifically:

- Employers' expectations of graduates' skills and job readiness have grown and outpaced reality;
- Literature identifies widespread under-utilisation of graduate skills and suggests that the onus for influencing job design is instigated on a one-off basis by graduates rather than employers; and

- On the job learning can be very effective.

In order to formalise a model capable of testing the Pawson approach in depth, it was necessary to develop ideas about what shape effective interventions might take. To do this we considered the outcome of Stages 1.2 and 1.2 in the context of the Phase 1 study. Better skills utilisation and higher productivity are the common outcomes, within the context of graduate under-utilisation. Mechanisms could, for example, include encouraging SMEs to collaborate to develop rotation schemes where employed graduates move around different firms to broaden their skills and experience and facilitate knowledge sharing. It could also include the development of internal processes for involving graduates in more collaborative management and business planning. Figure 1 below sets out the initial programme theory for such an intervention which formed the basis for the evidence search.

Figure 1 Initial Programme Theory



Stage 2: Searching for Primary Studies

The traditional approach to systematic review is to focus the search strategy on identifying the most similar primary studies (and often the most similar study). With this evidence in hand, the review can quickly proceed to conclusion. As the example above suggests, this approach would fail to unpack the different programme theories which may be at work. So, for example, attention should be given to issues of context (what are the characteristics of the firms involved, do different macroeconomic conditions matter, do incentives work alongside other schemes etc.). Of course there may be myriad theories at work: the challenge is to identify which may be the most dominant ones - and to specify links in a possible long chain of intervention. The final stage in searching for evidence is a final check to ensure that key sources have not been missed: the search strategy should follow set lines but also allow for some purposive sampling (i.e. focus on the promising lines of enquiry).

Stage 2: Searching for Primary Studies		
2.1 Standard Search Approaches	**What does this mean?** Convert 1.3 (causal mechanism) into a series of search terms and categorise these. Undertake searches using google scholar, academic search engines, and google (for government evaluation documentation).	**The Task:** i. identify search terms; ii. undertake search and carefully record material (i.e. include 'full set' of documents) **Outcome:** A literature search with all references with abstracts (with full refs stored) presented

Search results:

Google Scholar was used as the main search engine. The decision to use this particular search tool was a practical one. It is a very quick way of searching for academic publications and this was an important consideration for this study. Its weaknesses are that it can miss grey material such as working papers. In addition, because it uses a Google search methodology it can focus on 'popular articles' rather than the most relevant. To address this, checks on the latter were undertaken. In previous literature reviews the authors have used Web of Science and found this to have weaker search engines than Google and yield less relevant results.

Refined search terms were as follows:

- "graduate development" + incentive: this yielded 196 results, of which 12 appeared to be of direct relevance;
- "graduate development" + participation; there were 360 results from this, with the first 200 briefly examined and 13 subsequently selected for inclusion in the long list;
- "graduate development" + commitment: this generated 381 results. Again, the first 200 were briefly scanned, and from this 11 were selected for inclusion;
- "graduate development" + productivity: this produced 217 results, the majority of which were publications already identified by the earlier search terms;
- "graduate development" + "skill utilisation": there were no results for this search string;
- "graduate development" + "skills utilisation": this produced 1 result, but this was already in the list;
- "graduate development" + "skill utilization": there were no results for this search string;
- "graduate development" + "skills utilization": this generated 1 result, but this did not appear to relate directly to the topic;
- "skills utilisation strategies": this yielded 2 results, one on 'high performance working', the other a literature review of theory and practice across different countries. This was added to the long list for further consideration.

The overall outcome was the addition of a further 37 references to the list generated by the initial search undertaken as part of Task 1.1. This provided a long list of 58 publications for more detailed examination in terms of relevance and quality (see Task 3 below).

2.2 Identify Other 'Theories'	**What does this mean?** Identify and highlight any gaps from 2.1. For instance: where there is insufficient evidence to address 1.3 (causal mechanism) or where there are emergent rival theories.	**The Task:** This is essentially an initial review of 2.1 (search results) to identify gaps. These are likely to emerge during the search stage. If stage 2.1 yields few results this may be a critical stage and take more resources. **Outcome:** A list of alternative theories of change to address.

An initial scan of search results suggested little or no direct reference to skills utilisation strategies per se. However, a theme emerged around 'graduate development programmes' aimed at embedding new recruits into workplace cultures and practices, at ensuring appropriate application of skills, and at enhancing career development prospects.

The main gap was lack of any evidence specifically on incentives for employers to enhance their utilisation of skills. However, some of the references on graduate development and high performance working covered this issue as part of these broader themes.

2.3 Follow 'Purposive' Sampling/Searching	**What does this mean?** This stage builds on 2.2 and requires researcher to follow possible leads and explore alternative documentation/references. For example, incentives used in different contexts such as asset based welfare.	**The Task:** It is very important that the purposive sample is documented and reasons for not pursuing certain lines of enquiry made explicit. **Outcome:** Alongside 2.1 a fully documented search (presented in sample style as 2.1.

A further literature search was undertaken using "high performance working" as the key phrase. This produced 435 results, of which the first 200 were briefly scanned. Only those referring to employers or workplaces were considered; any involving mechanical or physical functions were ignored. From these a further 8 publications were added to the long list, making a combined total of 66.

Stage 3: Quality Appraisal

Systematic reviewers place considerable emphasis on the gold standard of randomised control trials. Realist Synthesis accepts that there may be a greater plurality of evidence and the key focus should therefore be on relevance (to programme theories) and on rigour. The assessment of relevance is relatively straightforward although it does require the reviewer to actively and systematically narrow down the primary studies at hand. The second part, the assessment of rigour is however equally significant - here careful assessment is required to ensure that primary studies are analysed in a step-by-step manner, with consideration given to the methods used, the conduct of research, the results, and the drawing of conclusions. Pawson notes that conclusions may tend to over state or over generalise findings.

Stage 3: Quality Appraisal		
3.1 Assessment of Relevance	**What does this mean?** The simplest way to approach this stage is to award a mark against an agreed scale (e.g. 1-5 with 5 highest). Relevance should be defined in stage 1.3 - the focus should be on relevance of evidence to the mechanism: e.g. an employer incentive scheme used in another country should be scored highly, even though the context is likely to be very different.	**The Task:** Awarding a 1-5 mark to each reference. **Outcome:** A scored list of references for relevance

The first task was to apply a set of selection criteria to the long list of references, in order to determine which had the most direct relevance for the subsequent Realist Synthesis stage. Five broad tests were devised for each publication, as follows:

- It concerns or makes reference to 'skills utilisation' in formal employment (R1);
- It focuses on high level or graduate skills/employment (R2);
- It presents (original?) empirical evidence (R3);
- It involves examination of a targeted programme or other policy intervention for graduate/HLS take-up (R4); and
- It considers effects on matters such as firm performance, innovation, career development, etc. (R5).

Passing each test resulted in the award of one point to each article, thus permitting a maximum score of five points.

Any references gaining 70% of the maximum score (i.e., 3.5 points or more) were then selected for quality assessment. All the rest were omitted from this next stage. This meant that 20 of the original 66 entries were subject to further consideration.

3.2 Assessment of Rigour/Quality	**What does this mean?** Traditional systematic reviews place greatest weight on evidence from RCTs. This is not the case with RS: nonetheless greater weight should be given to peer refereed findings.	**The Task:** It may be appropriate to only focus on documents which are scored 4 or 5 for relevance. **Outcome:** A short list of documents for further assessment.

A second scoring system for quality assessment was devised, with three main components:

- sources of evidence (Q1)
- comparative ranking of publication (Q2)
- date of publication (Q3)

Sources of evidence:

- points for those using multiple research methods and/or with group sample sizes of 100 or more;
- 1 point for those using multiple research methods but with sample size below 100; and
- 0 points for those using single research tool and sample size below 100.

Comparative ranking of publication:

- points for those published in journals scoring 3 or 4 in the Association of Business Schools Academic Journal Quality Guide (January 2007);
- 1 point for those published in journals scoring 1 or 2 in the ABS Guide; and
- 0.5 points for those issued by non-rated journals, research foundations, government departments, conference papers, departmental working papers and similar sources.

Date of publication:

- 1 point for publications issued in the last 15 years (i.e. since 1995); and
- 0 points for any publications issued before this.

The following table summarises the results of this quality assessment stage, and the overall scores awarded to the 20 articles.

QA Score	Number of Publications	Overall RA + QA Score	Number of Publications
2.5	3	6.5	10
3	11	7	7
3.5	3	7.5	1
4	2	8	1
5	1	8.5	1

As a large proportion of publications had already been stripped out and all of the remaining 20 had attained an overall score of 65% or above a decision was made to including all 20 selections in the synthesis with regard given to the quality and relevance assessments throughout the review process.

Stage 4: Extracting the Data

In contrast to systematic review, where the focus is on extracting primary data, the task for Realist Synthesis proceeds through the following steps:

- *Annotation*: primary studies provide evidence on a particular theory; but they may also provide rival or competing theories. The task here is to annotate and articulate these.
- *Collation*: in explanatory reviews such as Realist Synthesis, the purpose of collation is to draw together fragments of evidence to reveal, support or refute the operation programme theories. This task is more subtle and iterative than a systematic review
- *Reportage*: The point here is that whilst systematic reviews focus on 'findings', Realist Synthesis may seek to examine key intermediate steps - exploring the intervening variables which may be at work in the achievement of certain outcomes.

Stage 4. Extracting the Data		
4.1 Annotation	**What does this mean?** The task here was to extract the data and set against the original theories of change.	**The Task:** Extract key data from short listed documents **Outcome:** A document which presents data for each theory.
4.2 Collation	**What does this mean?** Data from rival studies is compared within and across theories of change. The task was to support or refute the different theories at work.	**The Task:** To take the document produced at 4.1 and to compare findings/data within and across theories - providing a commentary on the data. **Outcome:** A further annotated report, building on 4.1.
4.3 Reportage	**What does this mean?** The challenge here is to piece together evidence on intermediate steps: not to rush to write up 'end' findings: the focus is on explanation and interpretation.	**The Task:** Pull together evidence from 4.2 above and assess the extent to which it supports each intervening step in the theory of change **Outcome:** A draft data report.

These stages were largely undertaken together. Each of the 22 studies identified was analysed and relevant data extracted to populate the conceptual model, and in particular four key elements:

1. Problem Identification: skills utilisation
2. A. From Intervention to Outcome - Graduate

   B. From Intervention to Outcome - Employer
3. Intermediate Effects on Business Processes
4. Ultimate Impacts on Skills Utilisation and Productivity

Annotation: The first task served to set the context and provided a framework against which critical judgements could be made around the findings from more specific studies. Stage 2 explored the relationship between intervention and outcome for the two sides of our model. Stage 3 brought these findings together and explored employer-graduate interaction. In Stage 4 the findings were set against the original problem identification.

Collation: In exploring the nature of the evidence (its quality and the context in which it was gathered) this stage sought to reflect on alternative explanations which may also exist to explain outcomes - or at least to moderate and highlight the limitations of some quite specific studies; for example work which drew on very narrow case studies, undertaken at a specific point in time, and in very specific labour market and economic conditions.

Reportage: Finally, in the preparation of the report we sought to understand the limitations around the evidence and to understand the intermediate steps which may be involved. An example here was around which firms are more likely to recruit graduates, and to understand this in the context of substantial growth in the supply of graduates and a realignment (by accident and design) by businesses of graduate jobs and the utilisation of graduate skills.

Stage 5: Synthesising the Data

Rather than race to draw findings together, Realist Synthesis proposes that the data should be examined in the context of complex theories of change which underpin interventions. This may involve the following tasks:

- Questioning the integrity of the original programme theory (e.g. have all the key aspects of high level skills employer incentives been considered?);
- Adjudicating between rival theories which may be at work (e.g. is it the financial inducement part of the incentive which matters or the process by the incentive is allocated to employers?);
- Considering the same theory but in comparative settings (e.g. do incentives work better for some firms, in certain sectors in different locations?); and
- Comparison of official expectations with actual practice (e.g. do incentives work as originally intended?)

Stage 5: Synthesising the Data		
5.1 Question the integrity of the original programme theory	**What does this mean?** For example, a theory might be 'performance payments to firms based on employment of additional graduates increases firms' profitability.	**The Task:** Examine evidence against each original programme theory **Outcome:** A section of a final report on 'what works and why'.
5.2 Adjudicate between rival theories which might be at work	**What does this mean?** Take findings from 5.1 and question whether results may be achieved for other factors (e.g. location, background of senior staff etc).	**The Task:** To challenge assumption that it is 'incentives alone' but other factors may need to be in place, or indeed explain change. **Outcome:** Adding to the final report by asking 'what works and why, under what circumstances'.
5.3 Consider the same theory but in comparative settings	**What does this mean?** To what extent does context matter for explaining the success of a theory? Are there particular elements of a theory which matter more than others?	**The Task:** Identify and draw out evidence presented in stage 4 on context or comparative settings. Question and challenge assumptions made in 5.1 and 5.2. **Outcome:** A further section of the final report. Draw out specific implications for Yorkshire and Humber.
5.4 Comparison of Official Expectations (Programme theories) against Actual Practice (Implementation theories)	**What does this mean?** Place draft report against official policy positions on what drives high level skills in regional economies and the role of employer incentives in this. What else may explain changes or drivers?.	**The Task:** Comparison between Realist Synthesis and the phase 1 report. What aspects of this can be challenged? **Outcome:** A short statement which suggests where official expectations hold and where they can be challenged.

The purpose of this stage is to return to the original theories of change and to provide statements around:

- Theory of change integrity: what works and why?
- Adjudication between theories: what works and why, under what circumstances?
- Comparative settings: drawing out implications for Yorkshire and the Humber and examining whether different recommendations would be made for different places?
- Challenging Official Expectations: what aspects of skills utilisation policy can be challenged by the evidence review?

In undertaking stage 5, the study team sought to link as closely as possible the evidence review with the findings of the Phase 1 context assessment. Taking each strand in turn:

Theory of change integrity: what works and why?

In assessing the integrity of the theory of change, our focus was on the extent to which contextual factors would undermine the scale of the potential outcome or mean that the intervention would not work at all. The evidence showed that graduates' early work experiences are crucial to their future career opportunities and the contribution that they can make to future employers. Many graduates are under employed which can significantly affect their future employment chances. Graduate programmes are a well established way of developing and utilising graduate skills to realise their potential and ensure that become a productive element of the workforce.

Encouraging employer participation in graduate schemes (for graduates already in work) should help to address graduate under-employment - which is likely to be a contributory factor to a low skills equilibrium. There is evidence that graduates on a formal programme are able to introduce innovation and have significantly higher earnings potential several years after graduation indicating their greater relative value to employers. The rationale behind implementing a graduate scheme to address a low skills equilibrium is closely aligned with the implementation of High Performance Work Practices (HPWP) – which characterise some the UK best performing companies – to increase productivity; graduate schemes include many HPWP elements). There is no evidence of graduate schemes that have been introduced with the specific intention of increasing skills utilisation to reverse a low skills equilibrium but the evidence that is available does clearly indicate the potential to achieve this outcome of implemented effectively with respect to the context.

Adjudication between theories: what works and why, under what circumstances?

The material reviewed is clear that graduate schemes are dependent on effective design with carefully thought out placements and projects where these elements are included. The capacity and skills of managers and mentors are also crucial. Ensuring that turnover among graduate staff is controlled will be important in ensuring an employers' return on investment (ROI).

Most graduate schemes are developed within large firms whilst the potential mechanism examined in this study involves the development of a programme for graduates employed in SMEs and potentially across a number of SMEs. There is evidence that schemes can be effective when implemented in SMEs and also across a number of different SMEs. However, this type of scheme may be expensive and employers may be reluctant to invest, particularly as the evidence suggests graduate commitment to employers tends to be low and turnover consequently high.

Changes in the structure of firms and employment patterns over the last 20 years or so (including increased self management of careers by graduates) have led some to suggest that traditional graduate programmes are losing relevance. However such schemes remain popular and under-employed graduates are arguably less likely to be adept at self managing their careers. The proposed mechanism therefore generally retains relevance in a contemporary context.

The Realist Synthesis has provided little conclusive evidence to identify specific contextual success factors. Within some industries/professions (such as law and accountancy) competition for graduate places is fierce and although graduates may not be employed to their full capacity – instead gaining experience towards their professional qualification – the model works effectively for those businesses. These firms would be an inappropriate focus for this type of intervention (unless it was for graduates employed in non graduate roles).

The evidence on the implementation of HPWP to increase business competitiveness does suggest sectoral variations for what practices generate particular business outcomes. There is some evidence to suggest, for example, that positive outcomes will not be achieved within the retail and wholesale sector by implementing HPWP.

The overarching message is to caution against assuming that HPWP can be transferred from a high value added environment to a low value added environment to generate the same outcomes. Successful implementation is likely to be dependent on the presence of the very factors (such as internal systems, values and work culture) that have been responsible for the firms success and which are much less likely to be in place in a low value environment. While this argument challenges the assumption that implementing a graduate programme will necessarily generate internal changes to improve skill demand for high level skills and increase competiveness, it does not follow that such a scheme cannot achieve this result with good programme design, appropriate screening and effective implementation. A focus on firms that have an appetite for internal change but are unsure how to achieve it would be logical.

Comparative settings: drawing out implications for Yorkshire and the Humber and examining whether different recommendations would be made for different places?

Implementation of this type of programme would need to be based on policy decisions about desired impacts. To achieve maximum impact the best focus would be in higher value areas with high numbers of students. The rationale is that there will be greatest potential to achieve a critical mass of increased demand for high level skills – and the most potential to reverse a low skill equilibrium where lower value businesses have the advantage of being located close to higher value businesses and where there is an overall concentration of businesses and HE/high skilled people. This draws on agglomeration economic theories. From the viewpoint of reducing social and economic disparities across the region it may be more appropriate to focus implementation in the most economically vulnerable parts of the region and where a LSE is most prevalent but where impacts would be most difficult to achieve e.g. Hull and the Humber Ports City Region.

If the Realist Synthesis had provided more detailed evidence on the effectiveness of either graduate development programmes or implementation of HPWP, there would have been greater potential to make recommendations about sectoral application of the proposed mechanism. This has not been the case and reflects a limitation of this approach where limited evidence of existing programmes is available, and where available evidence does not necessarily cover all desired aspects of implementation.

There are a number of practical considerations for the implementation of the proposed approach including the abolition of the RDAs and uncertain scope, shape and remit of Local Enterprise Partnerships within Y&H. Limited funding in future years will also potentially provide a constraint.

Challenging Official Expectations: what aspects of skills utilisation policy can be challenged by the evidence review?

There is very little evidence on the effectiveness of skills utilisation policy. While theories about the potential implementation and impacts of skills utilisation policy are logical there is no real evidence to demonstrate their effectiveness in practice. As such it is not possible to challenge or support it beyond the points made above about the need to apply caution in assuming the transferability of HPWP.

Stage 6: Dissemination

Arguably this is an area where Realist Synthesis has an advantage over systematic review. It is inevitably better placed to provide arguments around why certain interventions work better in particular contexts and achieve (or not) different outcomes). It also provides a framework for judging between evidence which differs in scale and quality i.e. between areas where much is know about (e.g. incentive payments for training in these sectors) and areas where less is known (e.g. incentives to these sectors).

In conclusion the process of Realist Synthesis is a time consuming process. Careful consideration needs to be given to the selection of a small number (possibly just one) intervention to explore using this method.

Stage 6: Dissemination (i.e. reporting)		
6.1 What has been found (reporting the key findings)?	**What does this mean?** A short summary report outlining the key findings.	**The Task:** A short summary report outlining the key findings **Outcome:** as above.
6.2 But countenanced with: why do certain interventions (mechanisms) work better in particular settings (contexts) to achieve (or not) certain results (outcomes)	**What does this mean?** This is the cornerstone of a Realist Synthesis: the approach is critical of traditional presentation of 'findings' and asks for caution in drawing out implications for policy.	**The Task:** Essentially to provide caveats and cautions to 6.1. **Outcome:** A draft final report.
6.3 Revise Reports following comment and challenge	**What does this mean?** Reports should be made open to scrutiny and challenge from steering group and external reviewers.	**The Task:** Steering Group Meetings and some discussions with externals **Outcome:** A final report.

In this stage, the final conclusions to the report are drawn out following discussion, qualification and challenge. It involved the study team developing a draft report and policy implications. There were then refined following review and challenge by the study steering group.