Students' Perceptions toward Developing Generic Skills at University, Work Placement and Employment

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ABSTRACT

The role of work placement in the UK university and workplace is examined in this research project. Through an appraisal of the literature, it outlines that outcomes of the work placement can be described as three fields: academic performance, generic skills and career exploration.

Engineering-based students were surveyed to determine their perceptions of the contributions that the learning contexts of university, work placement and post-graduation employment made to the development of their generic skills. All the respondents had experienced work placement as a formal part of their undergraduate studies. Findings showed that while graduates recognized the contribution university had made to their generic skills development, they greatly valued the experience of learning in the workplace during placement and subsequently in the employment. The importance of teamwork, being given responsibility, basic business skills and collaborative learning emerged as the most important factors for effective learning in the three contexts under consideration.

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AUTHOR'S DECLARATION

I declare that this thesis has been composed by myself unless otherwise stated. All quotations have been distinguished by quotation marks and the work of other authors has been acknowledged by means of references.

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CHAPTER ONE: BACKGROUND AND INTRODUCTION

1. 1. Research Background

The work placement is a characteristic of contemporary higher education that is focussed towards improving the development of students' employability and transferable skills. Over recent years there has been a strong move to make UK degrees more applicable to the world of work and including the work placement as an integral part of a degree programme is one way of achieving this. Many universities have incorporated this trend for some significant time [see appendix 1] [1]. This tendency could be found by the number of annual internship participators in the UK that is estimated between 50,000 and 70,000 [see appendix 2, 3] [2] [3], but there is evidence of a decline in placements as well [4] [5]. More recently the work placement has again been under consideration in the UK as such activity becomes central to government policies [5].

A large of body of literature is devoted to the understanding of the internship or work placement. Three domain approaches have characterized the research work in this field. The first approach focuses on the direct relationship between participation work placement and such outcomes as academic achievement, career exploration, and generic skills. In the second approach, the outcome variable is satisfaction with the work placement, supervision, job factors. In the final approach, both the process and outcomes are multidimensional.

1.2. The Work-Based Learning in the UK Higher Education (HE)

Work placement originated in the UK in the 1950s [6]. The period of work related to a programme of study is known as a placement. Work placement relating to study programs was initially applied in the engineering and technology discipline and the study programs became known as Sandwich Courses. In the 1970s, the Council for National Academic Awards (CNAA) began to extend the application

of Sandwich Degrees beyond the scope of engineering discipline, over time, it was in particular widely applied in the business related disciplines from the 1980s [7] [8].

Work-based learning has long been a feature of engineering disciplines in the UK. The number of annual engineering students undertaking industrial experience was around 13,000 from 2003 to 2009 [9]. There are currently 600 undergraduate degree programmes offering sandwich placements in total 2,468 different engineering undergraduate courses [9] and approximately 20% of universities provide 70% of the Sandwich placements for engineering students every year in the UK [9].

The Engineering UK 2011 Report summarized that the engineering sub-discipline includes general engineering, mechanical engineering, electronic and electrical engineering, chemical, process and energy engineering, civil engineering aerospace engineering and production and manufacturing engineering [2], which defines its scope of provision of "*engineering based*" as considered in this project.

1.3. The Format of Work Placement as Considered in this Research Project

The QAA Code of practice for assurance of academic quality and standards in higher education [10] defines placement learning as follows:

"Placement learning is regarded, for the purpose of this publication, as the learning achieved during an agreed and negotiated period of learning that takes place outside the institution at which the full or part-time student is enrolled or engaged in learning. As with work-based learning, the learning outcomes are intended as integral parts of a programme of study" (p.16).

With the exception of the conventional one-year long Sandwich placements (i.e. "*thick Sandwich*"), the practices of Sandwich placements are more flexible in the form of providing 3 or 4 months of industry work (i.e. "*thin Sandwich*"). On the other hand, some work placements are provided by enterprises for the purpose of recruiting suitable employees or addressing the short term challenges in the recruitment normally during the summer or winter holiday in the UK. Two types of work experiences are commonly known as internships by the professionals in the industry or Higher Education Institutions (HEIs). *Placements for Engineering Students: A Guide for Academics* [11], which is hosted by The Higher Education Academy (HEA), outlines the definitions as follows:

Internship: "a period of paid or unpaid work for an employer which a student undertakes during the degree programme". (p. 2)

Sandwich Placement: "a period of paid work for an employer which a student undertakes during the degree programme. The student is usually required to submit an assessment reflecting on their work to the college/university". (p. 2)

For the desired research outcomes, work placement in this research project are defined as: a total of approximately one year-long integrated period of work experience which is undertaken by undergraduate students at many UK universities as part of their degree. It means that the co-curricular learning outside an institution that is not a planned part of a programme of study (e.g. part-time, term-term, vocation work) that students have arranged for themselves are not considered in this research project.

1.4. Conclusion and Structure of the Dissertation

A brief of the research project and the practice of work based learning in the UK engineering academic community have been presented in Chapter One. The nature of work placements will be revealed from the theoretical perspective of experiential education and learning in Chapter Two. In addition, the appraisal of existing research work in terms of the benefits of work placements will be performed in Chapter Two for the purpose of demonstrating the complex relationships among its stakeholders. In Chapter Three, the research questions will be established from the findings of the literature review and the compatible research methods will also be introduced. The survey results analysis will be performed in Chapter Four along with a discussion of the methods of developing generic skills and the issues associated with these practices in the settings of both university and workplace. Chapter Five will conclude the whole dissertation.

CHAPTER TWO: LITERATURE REVIEW

2.1. Experiential Education and Experiential Learning

This section provides an overview of the nature of work placements from the perspective of experiential learning. In addition, the way the learning outcomes are built and the variables emerging in the process are presented.

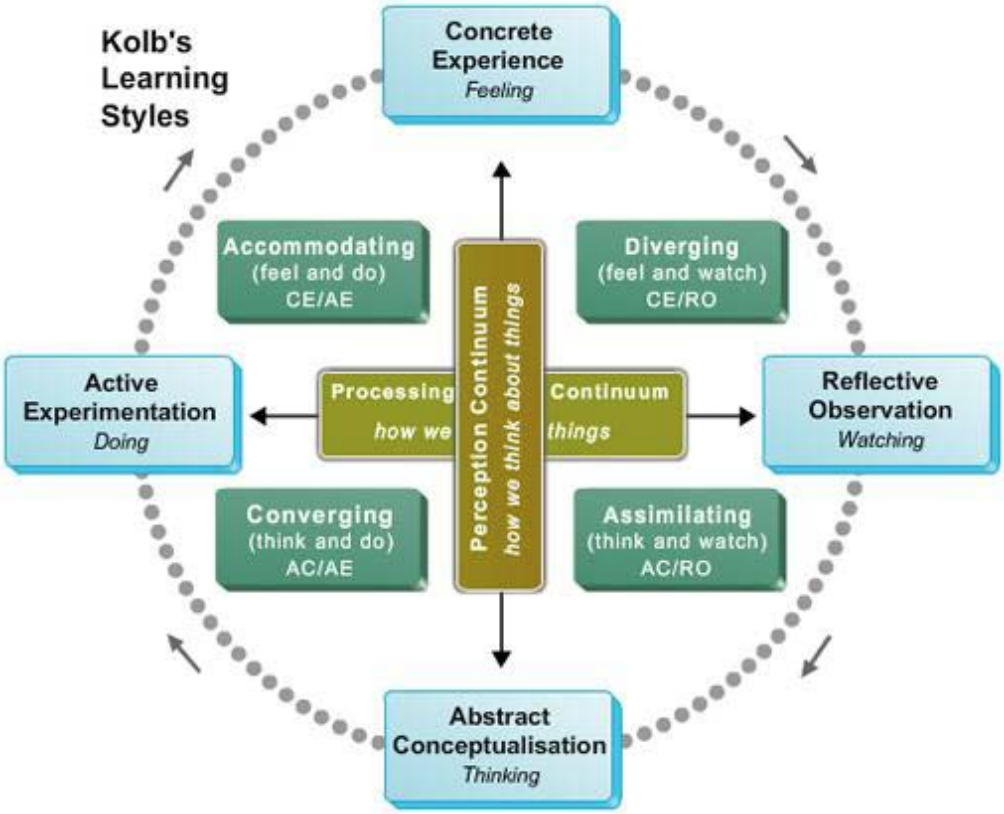
A review of the terms experiential education and experiential learning show that they are often used interchangeably when referring to the process of learning through practice [12] [13] [14]. However, there have been attempts to more precisely define each term. For example, Chickering [15] stated that experiential learning "*...occurs when changes in judgements, feelings, knowledge or skill result for a particular person from living through an event or events*" (p. 63). Itin [16] outlined distinctions between experiential education and experiential learning claiming they are different constructs and if conceptualised correctly, the distinctions identified allow for broader discussions and clearer communication that "*should facilitate professional understanding*" (p. 97). In fact, the similarities between them show that they both address behavioural change as a direct result of experience and prescribe an alternative approach to traditional classroom-based education. Thus, the terms are treated as one collective, interchangeable definition as the similarities appear to be far greater than the differences [17].

Lewin [18] viewed the knowledge gained from these interactions involved in work placements as factors that influence the learning process and recognises that the influence of these environments undoubtedly are important to the development. It appears to indicate that experiential learning can be made where students shape their knowledge, skills and behaviours as a result of the positive (or negative) interactions within the workplace.

James [19] concluded that experiential education focuses on four key elements. The first is that students use a plan to map out goals and areas of responsibility. Secondly, time management considerations are offered to ensure that the successful completion of tasks occurs within an appropriate level of time. Thirdly, challenging students is an important component of the process. By exposing students to varying degrees of perceived risk they are able to demonstrate their leadership qualities. Finally, the development of group dynamic to formulate a self-policing "*mini-community*" would allow the students to share experiences and teach each other skills.

David Kolb proposed that the idea of the examination of learning styles and the role of experiential education should be examined in the development of skills and knowledge among students [15]. He stated that his theory, Experiential Learning Theory, which is extensively used today, is "*...the process whereby knowledge is created through the transformation of experience*" (p. 41) [15]. The key philosophy reflected by his theory is to explore different learning styles/environment including those that evolve through practice, the framework of which is presented in Figure 2.1.

Figure 2.1- An Overview of Kolb's Learning Styles Model [13]



The modelling process begins with the student participating in a new learning experience (i.e. concrete experience, CE). From this, the learner reflects on the task and studies the new experience from a variety of viewpoints. This observation and reflection (RO) stage then leads the student to stage three called abstract concepts and theories (AC) where the learner makes sense of the new learning by drawing on past and present experience. Finally, Kolb suggests that the students undertake active experimentation (AE) where the information is synthesised and used in making decisions in situations.

2.1.1. The Internship or Work Placement as an Experiential Learning Tool

While the insights offered above show support for the use of experiential education as a development tool for students; converting the philosophy into an outcome requires the selection of an appropriate tool or process. Henry [20] suggests eight different approaches to experiential learning which include project work, problem based, independent learning, personal development, action learning, prior learning, activity based and placement. More recently, Kuh [21] offers a documentary evidence of a number of activities undertaken in the field of experiential education that provide a sound rationale for the improvement of student learning when integrated into a higher education curriculum. These high impact practices include:

- First-Year Seminars and Experiences
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects
- Undergraduate Research
- Diversity/Global Learning
- Service Learning, Community-Based Learning

- **Internships**
- Capstone Courses and Projects

When examining these practices in the context of HE, it is clear that a significant method for delivering high impact, experiential learning experiences in a higher education, vocationally driven curriculum is the internship or the work placement.

The review of the experiential education and experiential learning is possibly to indicate two approaches considering the learning involved in the work placement: cognitive and behaviourist approaches. Furthermore, the cognitive approaches lead to a better understanding of the heart of mission of work based learning (i.e. internships, placement). From this aspect, it could raise the consideration that the outcomes of the work placement are more than the reflection of enhanced academic performance. Under this intention, the next section is going to find support from the existing literatures with the method of reviewing advantages and disadvantages of work placements.

2.2. Current Findings on the Benefits of Internships/Work Placement

The section offers a specific appraisal towards the findings in the current literature with the intention of building deep understanding towards the structure of conventional work placements and the interactions among its stakeholders.

2.2.1. Benefits to Students

Many scholars have documented research regarding the advantage of work placements for students, such as, Busby *et al.* [22], Busby [23], Blair and Millea [24]. Although the environment of higher education has evolved over the years, the contributions of work placements for the modern education academic community and industry appear to have remained unchanged [25] [26] [27] [28] [29].

For students, the motivation for participation in a work placement experience is driven by a need for practical skills development [30] [31], the potential for enhanced academic performance [24] [32] [33] and the employment prospects it affords [34] [35]. These typically come from employers who recognize that a graduate who has both the theoretical knowledge and practical skills, to complement their learning, can complete tasks better and thus learn their vocation faster and perform better in the classroom. This allows the employer to recruit employees with greater confidence and potentially increase student opportunities for rapid promotion and professional development [36] [37] [38].

In addition, many studies show the combination of both practical skills and theoretical knowledge provides increased opportunities for individuals to enter industry at a higher employment level [24] [39]. A survey conducted in the United States by the National Association of Colleges and Employers (NACE) reinforces this premise that student participation in internships or cooperative education programmes is the unequalled way to increase employability upon graduation [40].

Additional opportunities for enhancing post-graduation employment prospects are proposed by Coco [36] and he proposes that further advantages can be realised by undertaking a work placement with one organization and then re-joining their employment upon graduation. This research work also suggests that these can potentially prove more beneficial as an expeditious understanding of the workplace, and job responsibilities. Meanwhile, the survey conducted by the Association of Sandwich Education and Training (ASET), undertaken by the University of Manchester and UMIST in 2004 provide similar findings that "*69% of students were offered graduate jobs, 80% of employers' recruited placement student with the primary aim of attracting them back to the permanent jobs, and*

40% of annual graduate intake from these employers consisted of former placement students" (p. 5) [41].

An additional finding proposed by Blair and Millea [24] recognises increased maturity in student attitudes. The potential to grow as an individual as a result of exposure to the work placement is a common intangible characteristic which complements others found in different studies. The ability to enhance networking opportunities is a fundamental role in assisting students or graduates with their career choices. Finally, some scholars suggest the work placement provides an ideal opportunity to assess their own abilities as they relate to their desired career path. According to Jones [42] although it is vital for students to build curriculum vitae and show potential employers that they have the ability to succeed, it is equally important to determine if the career path they selected is right for them [36].

An internship or work placement, in theory, allows them to determine this and inform decision making prior to graduation. The benefits of this "*try before you buy*" concept are further proposed by a number of authors, such as Coco, [36]; Daugherty, [43]; Zopiatis, [38].

In a study commissioned by the Association of Sandwich Education and Training (ASET), in conjunction with the University of Leicester, Mendez [33] reveals that students undertaking a sandwich course perform better academically. Undertaken on engineering students, the study concludes that a student is 4.6% more likely to achieve a first and 6% more likely to receive a 2.1 in their degree classification when benchmarked against their non-placements peers undertaking regular three-year degrees. Researchers at ASET also suggest that the skills and contacts built up during the time away, lead to an increase in full-time job opportunities upon graduation. These findings are supported by Blair and Millea [24], Little and Harvey [44] and

Mandilaras [32] who all find that work placements have a positive impact on academic performance and graduate employment.

2.2.2. Benefits to Employers in the Engineering Sector

The Engineering UK 2011 Report indicated that in 2009, the turnover of all engineering businesses was £848.6 billion (19.6% of total GDP), which is three times that of the finance sector [2]. This report also indicated that in 2009, there were a total of 482,880 engineering enterprises in the UK and the number of engineering employees was 4,566,316 [2]. Forecasts indicate that between 2008 and 2018 growth will occur in all sectors of industry ranging in scale from 5% to 15% in the engineering sector in the UK [2].

To meet this growth and keep pace with an industry that will inevitably rebound from the recessionary pressures of late, attention needs to be placed on the management and development of the workforce. The Engineering UK 2011 Report [2] claims that issues such as increased competition, globalization, a shortage of qualified and skilled staff are all areas to be addressed in the future.

For employers, in theory, the benefits of work placements appear numerous. To address the short term challenges of recruitment, employers have a vested interest in the development of personnel to grow with their business and are using the work placement as a vehicle for this process [36]. As a result, the skills and competencies of these future employees become increasingly important. Young [45] outlines that employers are looking beyond simple qualifications alone in their selection practices as new types of knowledge and skills are expected from graduates including information literacy. As a source for developing this balanced skill set of theoretical knowledge and practical skills, employers are increasingly turning to educational providers to assist in developing these requirements and thus the relationship between these stakeholders is perceived to be closer than ever [34].

Leslie's [46] research reviews how work placements help personnel managers shape strategy and develop new policies and practices. Specifically, he claims graduates entering the workforce, having completed a placement experience, are beneficial to the organization in areas such as recruitment, training and reduction of labour turnover. Daugherty [43] further supports this by claiming that the sneak peak approach by students testing their fondness of the industry (through an internship) can obtain longer term benefits in reduced migration and turnover rates. Busby *et al.* [34] undertake an appraisal of "*sandwich programmes*" in the engineering sector to identify the type of skills profile and development need required by employers from their trainee interns. As part of the study, they outline some of the benefits experienced by employers which include the generation of new ideas, the ability to identify/screen future employees, and offer that an internship also helps assist with flexibility in the workforce due to demand patterns. Busby *et al.* [34] citing Shepherd, further suggests that interns afford employers the ability to obtain a "*low cost employee*" (p. 3).

For many organisations, the attraction of a flexible workforce at a relatively low cost has great appeal [38]. Mulcahy [47] argues that the three key stakeholders (students, employers and educators) involved in work placement each have their own agenda and prioritise the benefits accordingly. However, when it comes to employers, he sees the work placement as an opportunity to source inexpensive labour on a regular basis that can be developed and used to fill skill shortages experienced by the employer. This presumption is supported by other authors including Leslie [46], Waryszak [48] and Zopiatis [38]. Two other findings common in these studies suggest that work placements provide the opportunity for employers to enhance the image of the industry by exposing the student to a structured training experience that motivates them to continue in their development of career objectives, and secondly the experience

provides an opportunity to mentor the next generation of managers [47].

However, the reality for some students can be different. As the current labour market has become increasing competitive due to the recent economic conditions, the number of unpaid internships is on the rise [49] as students are willing to trade off pay and compensation for opportunity and experience.

Zopiatis [38] outlines that stakeholders have different interpretations of the meaning and value placed on these work experiences and recommends that "*issues such as the internship's management, purpose, stakeholders' role and duties, and students' expectations must be revisited in an attempt to seek new innovative ways to promote a pedagogically sound experience, beneficial to all stakeholders involved*" (p. 73).

2.2.3. Benefits to Educators

Academic administrators and more importantly the teaching staff in higher education institutions, play an important role in the preparation of graduates for the engineering industries. As decisions are made on curriculum content, assessment, teaching, learning strategies and retention rates, choices are often made regarding the most effective way of preparing the student for future employment. While Kuh [50] and Kuh *et al.* [51] are championing the benefits of high impact learning experiences and other strategies for successful teaching and learning, in a higher education setting, some of the research in this area highlights an increasing trend in the decline of placements being offered in some higher education settings [52].

Decisions taken by academic administrators to review the structure of programmes and either remove work placement requirements or allow students to voluntarily choose are on the increase [52] [41]. Reasons for this removal focus on both the perceived high

administration costs associated with facilitating the process [41] [53] and students' preference for work experience [52] [54].

A study conducted by the Association of Sandwich Education and Training [41] suggests that internships are on the decline by stating that only 29% of higher education students take a work placement in the UK compared to the European average of 55%. The ASET also advocate the benefits of work placements to all three key stakeholders and are working with industry and educators to make the provision of internships financially attractive and in some cases profitable to education providers [41].

In education, the strategies for delivering the knowledge and concepts required of graduates revolve around a balance of theoretical and practical approaches. Whilst many educators advocate the need for theories and modelling of subject matter [55], they must also recognise the unique skills required of graduates as they embark on a career in a practically orientated vocation [34] [35]. As a result, many educators have sought more interactive ways to develop some of the key skills and competencies required by industry partners including the development of communication skills, problem solving techniques, managing diversity and some technical skills necessary for students to successfully operate within their vocation [56] [38].

Often strategies are employed to develop these through in-class presentations, case study analysis and other forms of applied learning. However, these are sometimes difficult to teach and develop within the theoretical setting of a classroom due to a perceived lack of relevance by the students [57]. Therefore, it has been argued that students should be exposed to many of these situations through hands on experience within the industry in combination with coursework and assessment strategies developed in a classroom environment [50] [51]. As such, the structure and design of work

placements differs depending on the type of course a student is studying [58] [59].

The idea of greater involvement between industry and academia has been highlighted by many of the studies reviewed for this section. Further benefits suggested by these authors include increased speaking opportunities [60], advisory board development and involvement [56], collaborative research [56], contacts for field trips, job fairs and industrial visits [38], assistance with recruitment to academic programmes [61]. In addition, Leslie [46] identifies further advantages to this relationship and suggests that education institutions benefit from this experience through increased contacts with industry which assists in setting up site visits, helps with curriculum development, enhances tutors knowledge, experience, and awareness of contemporary development and improves classroom discussions when students can relate the theory to practise.

When considering the criticisms or drawbacks to work placements from an educator's perspective, according to Jenkins [28] many of these issues centre on the structure, organisation and support mechanisms in place for educators to facilitate the experiences in a valuable way. As indicated earlier in this study, some administrators are attempting to look at the most cost effective way to facilitate this part of the curriculum and thus questions over structure, communication and general levels of support are highlighted as they are most affected by any cost saving measures.

Bourner and Elleker [26], specifically review work placements structure as part of their study on the development of action learning. Their findings examine outcomes from two different perspectives namely the academic supervisor and the placement coordinators and collectively, a number of key challenges are identified. These challenges include the perceived lack of value of a second visit by their tutor, procrastination by students over completing the work

placements. In addition, Bourner and Elleker [26] also identify a number of preventable reasons why some placements are unsuccessful. These include the timing of visits occurring too late which impact project work, the visits are brief and ineffective, the visits are too infrequent and finally many visits appear to lack a purpose. These insights are valuable to understanding the mind set of students in a higher education setting and are clearly transferable within education systems.

When benchmarking the appropriate length and structure of work placements devised by educators, Downey and Deveau [62] outline that 60% of employers thought students did not complete enough work experience prior to graduation. Walo [56], Harris and Zhao [63] suggest there is a need for increasing time on work placements. With respect to the latter, there appears to be many regional variances on the structure and length of work placements within UK institutions as each answer to differing accrediting bodies. European universities tend to structure the experiences over extended periods of time, ranging from 12-48 weeks which are completed in their entirety [22] [23].

2.2.4. Drawbacks with the Work Placement Process

One of the key disadvantages of work placements indicated in the literature relates to the need for students to have realistic expectations when they undertake their work based training. Often, without the luxury of first-hand experience, there is a disparate expectation between the student's own perceptions and the actuality of employment situations [64] [65]. These are typically borne out of comments by employers who reflect the experience of students after the completion of work placement. Studies by Barron and Maxwell [66], Kusluvan *et al.* [67], Schambach and Dirks [68] each suggest that this mismatch in perception actually discourages students from pursuing a career in the field after graduation. These findings are supported by Raybould and Wilkins [69] who conducted a review of

the expectations of 850 managers. Whilst recognising their study is limited to practising managers within the Australian hospitality industry, they identify significant gaps between the expectations of employers and those held by students. The study also identifies that educators are perceived to be investing too much time in developing conceptual and analytical skills while overlooking the need for competence based practical training and this could result in the creation of a negative perception.

Collins [70] poses three important questions about expectations in the education which focus on:

- What are the sector representatives' perceptions regarding the effectiveness of engineering education?
- What are the current and graduate students' perceptions regarding the effectiveness of engineering education?
- What recommendations can be made to improve the system?

Collin's study concludes that there are many mismatches in perceptions and that educators need to place greater attention to advancing technological integration, foreign language development and structured practical training.

Garavan and Morley [71] also suggests educators need to be more involved in managing this issue by stating "*Universities have a major role to play in structuring the experiences of graduates in terms of the kind of work they can expect to perform, their pay and promotion prospects a degree of freedom and discretion they may have within an organisation*" (p. 157). This suggestion is supported by Jenkins [72] who suggests that a poorly structured work placement could result in increased student complaints over the utility of the experience and may result in higher dropout rates of graduates. The inconsistency and quality of work placements is also a

concern of Petrillose and Montgomery [73] and Leslie [46] who suggests that this often leads to a missed opportunity in realising the positive benefits that were originally anticipated. In his study, Leslie [46] cautions that care must be taken to assign the student to the correct work placement experience where the maximum benefits can occur and expectations have a better chance of being met. In a comparative study of Dutch and the UK students findings suggest that the more exposure students had to the industry, the more likely they would be to consider dropping out and switching careers. The study tracks students at different stages of their education experience in two countries and found as they progressed each year, they became further disillusioned with their perception of the industry.

A final drawback proposed which contradicts some of the earlier work suggested by a number of authors on improvements in academic performance [24] [33] [44] is offered by Duignan [74]. He raises the issue over a lack of evidence supporting enhanced performance and actually suggests that students need time to adjust back into the educational environment post work placement and this transition can have negative impacts on academic performance. This suggested drawback of an adjustment period relating to academic performance also has some support from Bullock *et al*. [54] and Walker and Ferguson [75].

2.3. An Overview of Generic Skills within the Engineering Disciplines

The review offered above indicates that the learning outcomes of work placement centre on academic performance, career decision making and generic skills. Meanwhile, the awareness of the importance of generic skills, not only for employment prospects but also for the development of the whole person is rising among various disciplines over the past few decades. With an extensive search, it can be found that terms like competences, practical skills, transferable skills, employability skills, and skills are often used interchangeably,

and to some degree have overlapping meaning. The term "*generic skills*" is used in this research project according to the definition outlined by *Tuning educational structures in Europe* [76], which refers to "*what a person is capable or competent of, the degree of preparation, sufficiency and/or responsibility for certain tasks*" (p. 69).

Table 2.3 presents the existing research studies on the significant constitutions of generic skills in the engineering disciplines, which were mainly outlined by scholars through vast surveys among engineering education stakeholders. It can be seen that classifications (e.g. communication skills; presentation skills) of the constitution of competences vary from different scholars; the framework proposed by Ward [77] in the EIE-Surveyor Project is adopted in this project. The reason for choosing this framework: first, the research targets and research context in the EIE-Surveyor Project is the engineering based students within the whole of Europe, which closely fit for the research purpose in this research project. Second, number of the research responds in Ward's work is 3,275, which is the biggest database with convincing evidence that I have found in this type of research so far.

The findings presented in Table 2.3 will be used to provide an overview for responses to understand the provision of generic skills. On the other hand, it should be noticed that more recently, the increasing importance of "*Global Competence*" and "*Commercial Awareness*" are advocated by engineering education stakeholders [78] [79]. Global competence is defined by Downey *et al.* [79] as "*ability to work effectively with people who define problems differently than oneself, including both engineers and non-engineers*" (p.1).

Table 2.3-Constitutions of Competences Compiled from Existing Publications

Data Sources	Constitutions of Competences
Ward [77]	Generic competences; specific competences; language skills
Bhattacharyya & Sargunan [80]	Presentation skills; language skills
Cutler and Borrego [81]	Global competency
Darling and Dannels [82]	Communication skills (e.g. public speaking; meeting)
Tong [83]	Learning skills
Dunn [84]	Leaderships skills
Nabi and Bagley [85]	Personal; communication; problem-solving attributes
Mumford et al. [86]	Leaderships skills (i.e. cognitive skills; interpersonal skills; business skills; strategic skills)
Nguyen [87]	Communication skills; social skills; presentation skills; interpersonal skills; leadership skills; business management skills; team-working skills; accounting skills
Moham et al. [88]	Pedagogy and inter-personal communication skills; team building skills and personal skills; proposal development – written communication skills; globalization and gaining international experience
Stasz [89]	Teamwork; communication skills; personal qualities
Harpe et al. [90]	Communication; problem-solving; critical thinking; teamwork; learning; interpersonal; intrapersonal; information literacy
Fong Woon [91]	Critical thinking; communication & Beahavioral skills; business acumen; practical aptitude
Lappalainen [92]	Communication skills
Middlesex University [93]	Personal and career development; effective learning; communication; teamwork; written and oral
Heitmann et al. [94]	Personal and professional skills and attributes; interpersonal skills
Markes et al. [95]	Personal and professional development skills; personal attributes
DfEE [96]	Oral communication; teamwork; self-confidence; self-motivation and presentation; networking; taking initiative
DfES [97]	Basic skills (literacy, language, numeracy, computer skills); intermediate skills; leadership and management skills;
EMTA [98]	Multi-skilling; greater flexibility; personal and generic skills; new and specific technical skills; computer literacy and ICT skill
Shackleton *et al.* [99]	Team leadership skills; the ability to think ahead and strategically; a combination and technical skills
Top 10 competencies required in current employment in the UK [100]	Working under pressure; oral communication skills; accuracy, attention to detail; working in a team; time management; adaptability; initiative; working independently; taking responsibility and decisions; planning, co-ordinating and organizing [see appendix 4(a) and 4(b)]
Top 10 competencies required in current employment in Europe [100]	Problem-solving ability; working independently; oral communication skills; working under pressure; taking responsibility and decisions; working in a team; assertiveness, decisiveness and persistence; adaptability; initiative; accuracy, attention to detail
London Riverside [101]	Teamworking; project management; negotiation; people skills; financial management

CHAPTER THREE: RESEARCH QUESTIONS DEVELOPMENT AND DEPLOYMENT

3.1. The Theories of Generic Skills in Work Placement

A number of studies [102] [103] [104] found that the expectations of employer groups in relation to university education appear to be strongly influenced by graduate attributes, capabilities, competencies and so on. As Clanchy and Ballard [105] argue, it is unrealistic for universities to guarantee that their students will graduate in possession of all the desirable generic skills and attributes spelt out in their institutional documentation. Such guarantees would, "*in all likelihood, leave universities vulnerable to litigation in the most extreme cases*" (p. 157). However, what universities should guarantee is that their students will all have the opportunity to learn and develop generic skills and abilities during their undergraduate study. How well they do this depends largely on individual attitudes and motivation, not only of teaching staff, but also students themselves. On the other hand, in the work placement or employment setting, employers are probably not able to force students to practise and develop generic skills and the students' performance of generic skills also largely depends on their attitudes and motivation in these settings.

Harvey *et al*. [106] and Te Wiata [107] found that students' ability to integrate and demonstrate generic skills was linked to the development of confidence in their application to new and different contexts, including the workplace. In the educational setting, students develop personal and professional skills while living away from home, travelling, doing voluntary or community work, and participating in clubs and societies, that impact upon their confidence and consequently increase their employability [102]. Even if these learning experiences can be harnessed and translate back into the classroom through critical reflection, it is usually not until they are included in students' learning objectives and formally assessed

that their importance for their future careers is fully accepted by students [103].

The mainstream of research in this field over the past 10 years has indicated that a strong disciplinary knowledge base does not guarantee a new graduate a job. For example, Harvey's research [106] in the UK highlighted that it was the "*graduate attributes*" which were perceived to be the variable that determined a graduate's success in the workplace, rather than their specific degree. Given that many universities are now deliberately emphasizing this to students, especially as they approach their final year, the ability to transfer and apply knowledge and skills learned at university into the workplace is becoming more and more important.

In utilizing the work placement or internship as an opportunity to reinforce the application of generic skills learned in the classroom, students can be required to reflect critically on and analyse their experiences in conjunction with the academic and workplace supervisors. Such a model supports the principles of lifelong learning, situated learning, or learning in context [108], and transformative learning [109], the theory on which has been discussed in Chapter 2. Atkins [102] develops this theme further when he argues that "*employer defined projects*" provide the opportunity for students to employ both their discipline-specific knowledge and their "*generic skills and personal attributes in a context closer to that which (they) will encounter after graduation*" (p. 276).

Most research into the role of the practicum in higher education has focused on three main aspects: the educational value of the work placement for the student; the interest taken by academic staff in their students' perceptions of the placement; and the benefits of the placement for students' future careers. While the work of Ryan *et al.* [110] and Toohey *et al.* [111] explored some of the generic skills issues in the context of the work placement, there have been few

comparative studies of the effect of context on skills development at university, during work placement and in post-graduation employment. Most studies have taken as their main focus on one or other of the three contexts. For example, Arnold *et al.* [112] compared the perceptions of students in different branches of management at six UK universities with those of employers, in order to identify "*the roles of placements and academic work in the development and employability undergraduate students*" (p. 48). Though this was a comparative study, it did not consider the perceptions of employed graduates. It aimed to determine whether "*the extent to which the competences students perceive as being most developed in placements and academic work are those which employers most look for in selecting graduate recruits*" (p. 69).

Until recently, one of the few investigations into the longitudinal benefits of the experience for graduates' skills development in employment was that conducted by Harvey *et al.* [106], in which 258 interviews were conducted with strategic managers, line managers, graduate and non-graduate employees in 91 organizations. Longitudinal study is a correlational research study that involves repeated observations of the same variables over time [18] and in this case, the same group of interviewees' perceptions of the benefits of generic skills were repeatedly observed by researchers over a long term period. It found that "*respondents overwhelmingly endorsed work-based placements as a means of helping students develop attributes that would help them be successful at work*" (p. 79).

Other studies have involved employers in an attempt to identify stakeholder expectations of university graduates. Bennett *et al.* [103], in a project for the UK Economic and Social Research Council, explored employers' perspectives on the role of generic skills in the workplace and the different uses, purposes and contexts for their development in the first few years of graduate employment. They found that there was widespread confusion among university

academics in the nature and purpose of generic skills in higher education, and that employers and employees alike have varying understandings of their importance in the workplace.

The findings offered above have contributed to the rapidly growing body of literature on stakeholders' expectation of higher education, such as Bridges [113], Holmes [114]. With remarkable consistency, the reports emphasize employers stated a need for graduates to be able to function in the workplace, be confident communicators, good team players, critical thinkers, and problem solvers, in addition, to be adaptive, adaptable and transformative people capable of initiating as well as responding to change [106] (more similar findings can be found in Table 2.3). Even though the desirable graduate attributes stated by employers in these lists (Table 2.3) vary little from those of the 1970s [109], it appears that the lists are getting long and longer, and more and more complex.

3.2. Research Questions

Whether or not employers have set unrealistic expectations and whether or not they are even clear in their own minds about what they actually expect from a new graduate is open to debate. Given that jobs in this century will be vastly different from any that have preceded them, perhaps it is time for employers and universities to reconceptualise the kinds of generic skills and abilities that are considered necessary for the new graduates. Therefore, the main purpose of this research project is to identify how university study, work placements and post-graduation employment develops generic skills among engineering based students. More specifically, the project aimed to determine, from survey responses, the perceptions of graduates on the following four issues:

1. What generic skills are best developed in a university context and how might they be better developed?
2. What generic skills are best developed in the workplace context?
3. How were the graduates' abilities and capacities enhanced or modified through professional work placements linked to their university course?
4. How were their generic skills developed through post-graduation employment?

3.3. Research Methodology

It can be seen from the above four research issues that the survey needs to concentrate on exploring student experiences regarding generic skills development in the university and also in the work place setting with a view to determining how they are transited from university to work place and vice-versa. Therefore in this research project the above issues were converted into research questions and a survey was conducted to discover the experience of students from the targeted universities. The overview of the survey will be presented in section 3.3.2.

3.3.1. Participating Schools

Five engineering related institutions from the University of York, University of Surrey, Nottingham Trent University, Sheffield Hallam University and University of Huddersfield participated in this research project. The participating institutions share the following features:

- Integration of the work placement in the undergraduate program (e.g. credit points are allocated)
- Academic and workplace supervisors for the students are allocated for the student on placement
- Allocation of a staff member to take responsibility for coordinating the program between school and industry
- Formal assessment by the university of the students' learning outcomes from work placement

3.3.2. Introduction of Survey

A questionnaire survey [see appendix 5] was designed for electronic and hard-copy transmission and follow-up notices and emails to the students were sent after two weeks. An initial covering letter referred the student for background information and definitions of the terminology used in the survey instrument.

The survey instrument included a total of 27 questions: 11 required responses on a 5-point Likert scale, where 1 represented "*strongly disagree*" and 5 represented "*strongly agree*"; 9 required a simple check-box response; 7 offered the opportunity for text responses.

The questionnaire was divided into three sections. Section 1 collected demographic information; Section 2 collected students' perceptions of their development of generic skills and abilities while at university; Section 3 collected similar data in relation to the development of generic skills in the context of university, workplace and additional comments on any aspects of generic skills development and/or the questionnaire.

The number of returned questionnaires (including electronic and hard-copy version) is 185 and 21 incomplete questionnaires were eliminated, so 164 valid questionnaires are finally used to analyse in this research project. Demographic data for the respondents collected from the questionnaires are reported in Table 3.3.2.

Table 3.3.2 Demographic Data from Survey Results

Demographics	Results
No. of Responses	164
University of York	41
University of Surrey	33
Nottingham Trent University	24
Sheffield Hallam University	18
University of Huddersfield	48
Female	78
Male	86
Age at Graduation	
19-21	18
21-25	92
26-30	28
Over 30	26
Year of Graduation	
2010	31
2011	40
2012	42
2013	51

CHAPTER FOUR: RESULTS OBTAINED FROM THE QUESTIONNAIRES AND THE DISCUSSION INTO THE RESULTS

Table 4.1 presents data on each of the questions that used a 5-point Likert scale, and all of the 11 Likert scale questions are discussed in the following section in response to the research questions the project aimed to address.

4.1. Results for Research Question 1

What generic skills are best developed in a university context and how might they be better developed? (Survey question 2 and 3)

There was agreement from 78.9% (Survey question 2) of the responses that they have had sufficient opportunities to develop their generic skills while at university. Many of the responses in-text comments referred to the scope provided to develop oral and written communication skills, critical analysis and evaluation, problem solving and team-work skills (Questionnaire Section 3, Question 2). Agreed responses to a question which asked them to identify the ways in which they best developed particular generic skills at university showed that group work was the preferred option followed by seminar session, generic skills based training or course and meeting with supervisors for the development of oral communication, problem solving, teamwork, leadership, assuming responsibility and making decisions and high ethical standards, besides, are placed in sequence (Questionnaire Section 3, Question 1).

Among the most frequently mentioned suggestions for improvement for generic skills learning activities from the graduates at university were a desire for: greater practical emphasis in undergraduate courses; more work placements; greater input from industry, more oral presentations, written assignments, project work, leadership training and case studies; and a greater emphasis on business administration skills (Questionnaire Section 3, Question 3).

The aggregated result of survey questions 3 showed that the majority of students (65.2%) felt that teaching staff had made them aware of the importance of generic skills.

Table 4.1 Summary of Responses to 11 Survey Questions Using 5-point Likert Scale

Survey Question	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1. When I was at university it seemed more important for my future career prospects to acquire knowledge related to my degree than to develop my generic skills and abilities.	8.2%	47.1%	11.3%	29.6%	3.8%
2. I did not have sufficient opportunities to develop generic skills and abilities during my undergraduate degree.	12.4%	66.5%	5.5%	13.6%	2.0%
3. University teaching staff made me aware of the importance of generic skills and abilities during my undergraduate degree.	4.3%	17.4%	13.1%	55.9%	9.3%
4. My university work placement was more important for enhancing my prospects for employment after graduation than for developing my generic skills and abilities.	3.8%	49.7%	49.4%	26.4%	10.7%
5. My university work placement did not provide sufficient opportunities for me to develop my generic skills and abilities.	23.1%	59.4%	6.2%	9.4%	1.9%
6. At university I was required to reflect on how my university work placement contributed to the development of my generic skills and abilities.	2.5%	10.7%	15.1%	58.5%	13.2%
7. During my university placement I was required to apply the generic skills and abilities learn in my undergraduate degree.	1.9%	11.4%	8.2%	59.5%	19.0%
8. It is important for me continue to develop my generic skills and abilities in the workplace as an employee.	1.3%	0.7%	0.0%	25.7%	72.3%
9. My employer creates sufficient opportunities for me to further develop me generic skills and abilities in the workplace.	4.9%	8.9%	9.0%	44.1%	33.1%
10. My place of employment after graduation was so different from university that it was hard for me to apply the generic skills and abilities that I had developed at university.	17.3%	55.3%	8.1%	14.0%	5.3%
11. My development of generic skills and abilities during university work placement gave me a definite advantage when it came to finding employment after graduation.	7.6%	10.1%	22.8%	43.7%	15.8%

4.2. Results for Research Question 2

What generic skills are best developed in the workplace context? (Survey question 5)

A higher percentage (82.5%) (Survey question 5) of responses recognized the opportunities offered during work placement for skills development, with one commenting that it "*provided a framework for developing skills needed to adapt to different work environments*", and another saying that "*work placement provided opportunities to utilise theses skills and abilities I developed in a workplace situation. It provided valuable feedback from industry regarding the level of skill I had acquired through my university studies*". When collating their responses to a question which asked them to identify the ways in which they best developed particular generic skills during work placement, working collaboratively with colleagues emerged as their preferred option for the development of problem solving, analysis, teamwork, leadership, assumption responsibility and making decisions and high ethical standards (Questionnaire Section 3, Question 5).

Written suggestions for improvement of skills development during work placement related to improving the quality of work placement and academic supervision, and increasing the opportunities to develop teamwork and project management skills. Some graduates would have preferred more interaction with a mentor during placement, and others more teamwork activities, and active participation in workplace meetings and decisions.

4.3. Results for Research Question 3

How were the graduates' abilities and capacities enhanced or modified through professional work placements linked to their university course? (Survey question 1, 4, 6, 7, 8, 10 and 11)

Slightly over half of the graduates who responded to survey question 1 (55.3%) felt that is was more important for their future career prospects to develop generic skills and abilities at university than to acquire content knowledge. They gave a similar level of non-endorsement (53.5%) (Survey question 4) to the value of work placement in enhancing employment prospects after graduation, and were only slightly more convinced (59.5%) (Survey question 11) that their generic skills had contributed directly to finding employment after graduation. While none of these results is particularly noteworthy, the fact that 98% (Survey question 8) of the graduates recognized the importance of ongoing generic skills development in the workplace was both interesting and well supported by in-text comments (Questionnaire Section 3, Question 7). Graduates referred to a number of different professional development opportunities they had engaged in during the early years of their employment, and there was general agreement that the range and number of such opportunities depended largely on the attitude of their employer or supervisor. One graduate commented:

"If your employer doesn't give you the opportunity or have the facilities for you to transfer your generic skills, then you've not got any chances of developing them, or of bringing your skills in. I suppose it's to do with attitude as well".

Data gathered in the course of this study suggested that there was a correlation between the graduates' experience of work placement and relative ease with which they made the transition from university to employment. The graduates' response to survey question 7 showed that 78.5% had been required to apply the generic skills learned at

university while on placement and that 72.6% (Survey question 10) had not encountered major difficulties in transferring between the two contexts. There was a strong perception (74.2% agreement with the statement in Section THREE question 6) that the skills developed during work placement had made a significant contribution to the graduates' subsequent career advancement. These findings suggest that work placements, as well as providing networking opportunities and work experience, offer a valuable preparation for the kinds of problems and difficult situation that the new graduate employee often encounters.

4.4. Results for Research Question 4

How were their generic skills developed through post-graduation employment? (Survey question 9)

Once they had entered employment, the majority (77.2%) (Survey question 9) of the graduates were satisfied with the opportunities available for ongoing skills development and cited in-house continuing professional development seminars and workshops, short training courses (Questionnaire Section 3, Question 8).
When asked to identify the ways in which they best developed particular generic skills in employment, collaboration emerged as their preferred option for the development of problem solving, analysis, teamwork, leadership, assuming responsibility and making decisions and high ethical standards. Comments indicated that they were aware of the need to be ongoing lifelong learners that they needed to be able to transfer generis skills from one context to another and develop them specifically to meet different requirements (Questionnaire Section 3, Question 8&9).

Consistently, the graduates in our study identified interactive group work and collaboration as the most effective ways to develop generic skills in the three different learning contexts.

4.5. Discussion into the Research Results

The questionnaire data indicated that the students who were surveyed distinguished quite clearly between the contexts of university, work placement and employment as sites of learning, each with unique characteristics and requirements. Issues relating to each of the learning contexts are now discussed. "*The workplace*" here refers to both context of work placement and post-graduation employment.

4.5.1. The Context of University

Throughout the survey responses, there was a strong emphasis on the importance of interactive group learning at university for the development of generic skills and abilities, in formal, assessable teamwork exercises or group projects. However, while recognizing the value and importance of teamwork skills, not all the graduates had confidence in their abilities to work in a team at the start of employment and were critical of how process aspects of teamwork had not been paid enough attention at university. One graduate said, for example:

"At university, you could actually circumvent the teamwork thing and just be an individual. You'd still pass and go forward, but when you go into the workplace, others are relying on you and you are going to have to rely on them. You can't afford to impact on them, and you have to realise that you are responsible to them so that you can provide them with what they need".

To some extent, the prevailing culture of learning at university, for example, a culture that values "*personal achievement, personal ambition, personal goal, and most importantly, personal rewards*" (p. 571) [115], is at odds with learning in the workplace, where "*team achievement, team goal and team results are vital to the success of the larger organisation, and (where) often individual needs and desire have to be subordinated to the collective goal*" (p. 582-583)

[115]. This opinion is supported by Harvey [116] that "*graduates …need to be able to work effectively in teams as there is little demand in a flexible organisation for introspective, individualised working. Most organisations operate via project-oriented teams rather than individuals working in a traditional chain of responsibility*" (p. 14).

Opportunities for teamwork in the undergraduate curriculum offer students not only the chance to develop leadership, interpersonal and communication skills, but also to practise ethical decision-making. Dunne [117] lists a number of other benefits of teamwork to students, universities and employers alike, and argues that "*the development of team work is well worth supporting and fostering*" (p. 363). However, anecdotal evidence indicates that little attention is paid by academics to the processes, roles and outcomes involved in effective team working and students often complain that they are thrown together in groups in an attempt merely to reduce the lecturers' marking load.

Comments from the graduates in this study confirmed that need for deliberate, critical reflection on learning not only at university, but in the student's broader social context. Orrell [118] includes "*reflection, debriefing on the work and monitoring of the quality of the outcomes*" (p. 4) in her list of distinguishing features necessary for a work placement to be effective, and Harvey [116] argues that if students' learning is to develop through work placement, then what is needed is "*systematic reflection*" (p. 26).

As well as incorporating critical reflection into the curriculum, academic staff need to encourage students to seek out and negotiate opportunities for skills development while they are on placement, and during the placement students need to formalize the process of feedback on performance from their industry supervisor. At the same time, academics need to make clearer to employers and work

placement supervisors the need to provide such opportunities, as Drummond *et al.* [119] argue:

"Established models of good practice suggest that effective skills development depends on opportunities to practice skills with support and guidance which encourages and informs constructive reflection and the definition of strategies for improvement. Self-assessment and feedback from peer groups are usually held to form a key component of this experiential learning process. Similarly, transferability depends to a large extent on practising skills in a wide range of different contexts" (p. 21).

4.5.2. The Context of Workplace

In the workplace, the survey results showed that generic skills development was closely associated with the degree of responsibility the students were given by their supervisors and employers and with the extent of collaborative learning they were able to experience, either in group situation or one-on-one interactions. This suggests that students in these fields need to be given more opportunities for structured group and teamwork while they are at university, by way of preparation for the workplace. Only the development of information literacy and written communication skills were felt to be best developed independently.

Comments by the graduates emphasized the importance of teamwork in the curriculum and confirmed the importance ascribed to it in the recent study by Scott and Yates (cited in [120]) as a valuable means of developing other skills, such as critical thinking, problem solving and ethical awareness. The findings' in-text comments strongly indicate that industry professionals should be involved in setting the problems that are multidimensional, involving complex ethical issues as well as technical knowledge.

The findings in this study suggest that most needs to be done at university to ensure that collaborative learning opportunities can be structured into the placement aims and learning objectives, and more importantly, into the placement supervision process. The graduates made frequent comments during the focus group discussion that being able to assume responsibility and make decisions about their own learning was a very significant factor in the development of their generic skills and abilities, but in general they felt there had not been sufficient opportunities for this in the university context. It is usually preferable that the work placement be structured as a worthwhile learning experience, but it is not always easy for academic and students to request employers to give temporary work placement students sufficient responsibility to ensure that their learning experience is both challenging to them and valuable to the organization [121].

While the majority of the responses in the survey indicated that their work placement experiences carrying out specific, "*employer defined projects*" (p. 276) [122] had been extremely valuable, a few responses commented that they had not had sufficient opportunities to do "*worthwhile*" (p. 4) [118] work during the placement, but instead had been required to do mundane, routine tasks such as photocopying and data entry. This suggests that there needs to be closer liaison between the academic and workplace supervisor to provide "*meaningful work*" (p. 4) [118] for students on placement.

The application of generic skills and abilities during work placements creates a number of problems for students and their academic and workplace supervisors, more often than not associated with assessment--how and by whom it is done. Toohey *et al.* [111] express it in the following way:

"Many of the problems surrounding assessment of the practicum arise out of an inability to reconcile traditional assessment practices with the kinds of learning outcomes that might be expected from the practicum. University education has usually favoured knowledge-based assessment and assessment methods which enable comparison and ranking of students. Ideally, the practicum offers students the opportunity to apply knowledge, test theory and consequently modify their understanding. Insights and understandings of this nature may be difficult for students to express and certainly do not lend themselves to simplistic assessment. Assessment methods such as journals, analytical papers and oral examinations which allow for exploration and insight are the methods most demanding of students and assessors" (p. 216).

It was clear that some of the students felt there was room for improvement in the way in which students negotiate the placement learning objectives and how they are conveyed to the work placement supervisor so that maximum learning can occur. It needs to be emphasized to the work placement supervisors that the placement itself is a valuable means of developing the generic skills and abilities that industry so frequently states it need in its new graduate employees; and that the placement provides valuable opportunities for some degree of joint assessment negotiated by academic and workplace supervisors.

While the survey results indicated that 72.6% of the students had not experienced difficulty in transferring their skills from university to the workplace, some responses indicated that their university lecturers had not prepared them adequately to transfer the generic skills abilities to the workplace, for example:

"if they would only teach you how these skills, or what we discuss in the theory, can apply to a variety of situation, and if you understood that concept and you'd been taught it, then to (take them) into the workplace I think would be fairly easy, (and you could) apply them to what you are doing, or to different areas".

It is possible that generic skills development during employment could be enhanced if the skills of transfer-learning how to learn, awareness of context, capacity to move between different viewpoints, languages and systems of knowledge, self-regulation and critical self-reflection [123]-received greater emphasis at the undergraduate level. Some respondents commented that their ongoing development depends largely on the attitude of the employer, the resources and facilities available in their workplace. For example:

"It really depends on the company, because some companies will just set up all the hoops and say, 'Jump through these; this is your job", and others will say, "Here is a ball-go run with it".

The positive result on skills transferability in Question 10 suggested that responses from these five universities had received good preparation for learning in the workplace and it may well support in practice the theoretical findings put forward by Tennant [124], namely that transfer can and does occur when:

- "Learners are exposed to 'authentic' activities, with the opportunity to access the full range of learning resources
- Learners are exposed to multiple situations and multiple examples
- Attention is drawn to the potential for transfer by highlighting the generic nature of the skill being acquired
- The higher-order skills and principles being acquired are identified and made explicit

- A supportive climate exists in the transfer context (e.g., supervisor support, opportunity to use learning, peer support, encouragement of further learning)
- There is a capacity to 'learn how to learn from experience', that is practice in analysing experience and developing strategies for learning
- There exists a community of discourse (i.e., a common way of talking) in which all members are actively engaged in learning through communicating
- Learners have 'lifelong learning' skills and dispositions (the capacity to be self-directed and control and regulate one's own learning)" (p. 177).

CHAPTER FIVE: CONCLUSION

The six research questions that the project aimed to address provided data that for the most part confirmed findings from the literature on the relationship between work placements, skills transferability and ongoing generic skills development during employment. It was clear that some generic skills (notably communication skills, problem solving, basic business skills, analysis and teamwork skills) lend themselves to development at university, provided students are made aware of their importance, and are given opportunities to practise them throughout their degree programs and in an authentic workplace setting.

Some graduates felt strongly that industry involvement in all aspects of undergraduate curriculum was beneficial, particularly because it exposed students to "*real-world*" problems and gave them experience in meeting deadlines and managing their time. Stronger linkages between curriculum content and "*real-world*" examples and applications were repeatedly mentioned by graduates as a means of developing generic skills in the university context.

Leadership and business skills, assuming responsibility and making decisions, and demonstrating high ethical standards were felt to be more appropriately developed in the workplace, either during work placement or in an employment situation, than at university where opportunities were more limited. Work placements provided an excellent platform from which students could progress to the workplace and seek further opportunities for their development. The majority of responses were satisfied with the range and numbers of opportunities their employers provided for professional and skills development. This argument is also the highlight of this research project, because many existing research works indicate that many students are not able to get sufficient opportunities neither in the work placement period nor the early employment period, an argument supported by the findings in the literature review.

Therefore, findings from this study may indicate that whilst insufficient opportunities for work placement or employment exist overall, students that get the opportunities are more satisfied with those opportunities provided by employers or they think that they are more important than those in the university.

Overall, the findings from the data gathered from the five universities supported the inclusion of work placements in undergraduate engineering based degree programs, both in terms of their development of students' generic skills and abilities and their provision of opportunities for employment and career development. The findings suggest that in the process of integrating generic skills and abilities into the undergraduate curriculum, the input and views of graduates should be considered in relation to the program development, not only as part of program accreditation and review but at the level of teaching and assessing in courses. A parallel finding can be revealed that input and views of supervisors in university and work placement are also needed to consider in the process of establishing undergraduate curriculum. In particular, data from the survey suggested that involving industry representatives in problem-setting and formative assessment of students' generic skills during work placement would be very beneficial in preparing new graduates for the workplace.

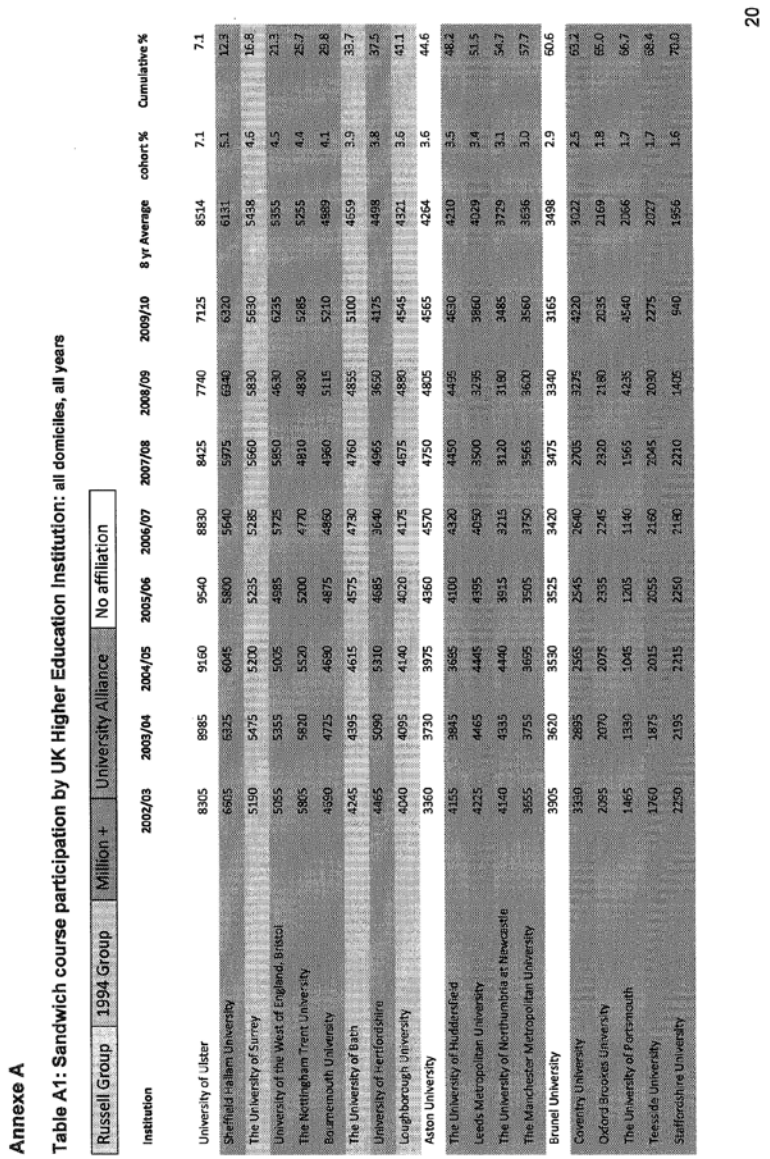
Data collected in this study underlined the importance of integrating the development and assessment of generic skills and abilities when designing the learning objectives of undergraduate programs and work placement and, even more importantly, of incorporating components of critical reflections on learning. The strong emphasis that was given to teamwork in the survey responses suggested that the implementation of well-structured processes for teaching students how to work collaboratively at undergraduate level is the single most important factor in ensuring the development of other, associated generic skills and abilities, not only at university but

during work placement and in employment. With this in mind, it is crucial that academic staff feel confident in teaching teamwork skills and processes, and that they are supported by comprehensive staff development opportunities and teaching resources.

APPENDICES

Appendix 1

This table is quoted from "Attainment in Higher Education" [1] and the purposes of presence are to estimate the number of work placement participators and its trend in the past years along with the universities providing Sandwich courses in the UK.



Annexe A

Table A1: Sandwich course participation by UK Higher Education Institution: all domiciles, all years

Russell Group	1994 Group	Million +	University Alliance	No affiliation

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
University of Ulster	8305	8985	9160	9540	8830	8425	7740	7125	8514	7.1	7.1
Sheffield Hallam University	6605	6325	6045	5800	5640	5975	6340	6320	6131	5.1	12.3
The University of Surrey	5190	5475	5200	5235	5285	5660	5830	5630	5438	4.6	16.8
University of the West of England, Bristol	5065	5355	5005	4585	5725	5850	4630	6235	5355	4.5	21.3
The Nottingham Trent University	5805	5820	5520	5200	4770	4810	4830	5285	5255	4.4	25.7
Bournemouth University	4890	4725	4690	4875	4860	4960	5115	5210	4889	4.1	29.8
The University of Bath	4245	4395	4615	4575	4730	4760	4855	5100	4659	3.9	33.7
University of Hertfordshire	4465	5090	5310	4685	3640	4965	3650	4175	4498	3.8	37.5
Loughborough University	4040	4095	4140	4020	4175	4675	4880	4545	4321	3.6	41.1
Aston University	3360	3730	3975	4360	4570	4750	4805	4565	4264	3.6	44.6
The University of Huddersfield	4155	3845	3685	4100	4320	4450	4495	4630	4210	3.5	48.2
Leeds Metropolitan University	4225	4465	4445	4395	4050	3500	3295	3660	4029	3.4	51.5
The University of Northumbria at Newcastle	4140	4335	4440	3915	3215	3120	3180	3485	3729	3.1	54.7
The Manchester Metropolitan University	3655	3755	3695	3505	3750	3565	3600	3560	3636	3.0	57.7
Brunel University	3305	3620	3530	3525	3420	3475	3340	3165	3498	2.9	60.6
Coventry University	3350	2895	2565	2545	2640	2705	3275	4220	3022	2.5	63.1
Oxford Brookes University	2085	2070	2075	2335	2245	2320	2180	2035	2169	1.8	65.0
The University of Portsmouth	1465	1330	1045	1205	1140	1565	4235	4540	2066	1.7	66.7
Teesside University	1760	1875	2015	2055	2160	2545	2030	2275	2027	1.7	68.4
Staffordshire University	2250	2195	2215	2250	2130	2210	1405	640	1956	1.6	70.0

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Table A1: Sandwich course participation by UK Higher Education Institution cont'd

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
University of Wales Institute, Cardiff	870	850	525	385	405	410	340	295	510	0.4	92.5
The University of Greenwich	920	640	440	480	460	400	305	290	492	0.4	93.0
The Queen's University of Belfast	460	5	0	2035	425	280	245	350	475	0.4	93.4
Aberystwyth University	175	535	520	490	500	425	435	450	441	0.4	93.7
The University of York	470	540	510	460	400	350	355	370	432	0.4	94.1
Edinburgh Napier University	85	455	595	385	405	405	385	280	374	0.3	94.4
The University of Leeds	340	315	150	405	400	430	390	515	368	0.3	94.7
De Montfort University	375	405	435	365	360	410	320	250	365	0.3	95.0
Edinburgh College of Art	345	350	355	365	400	370	375	320	360	0.3	95.3
University of Derby	765	500	380	420	190	170	160	140	341	0.3	95.6
The University of Bristol	210	305	285	350	335	360	355	330	316	0.3	95.9
The University of Reading	225	255	185	285	360	405	390	335	305	0.3	96.1
Glasgow School of Art	285	250	265	275	375	375	310	225	295	0.2	96.4
Birmingham City University	285	250	245	235	305	420	390	205	292	0.2	96.6
Swansea Metropolitan University	375	330	275	260	195	165	180	220	250	0.2	96.8
Anglia Ruskin University	370	330	265	230	200	150	110	225	235	0.2	97.0
London Metropolitan University	570	495	300	210	100	65	45	30	227	0.2	97.2
The University of Sunderland	670	285	215	180	165	100	90	100	226	0.2	97.4
Imperial College of Science, Technology and Medicine	260	215	245	235	235	190	200	195	222	0.2	97.6
The University of Sheffield	0	0	0	0	315	370	390	455	191	0.2	97.7
The University of the West of Scotland	375	305	205	230	150	35	70	70	180	0.2	97.9
Royal Agricultural College	185	235	230	205	240	85	85	0	158	0.1	98.0
University of Manchester	600	655	0	0	0	0	0	0	157	0.1	98.2
The University of Edinburgh	130	135	135	140	150	175	190	175	154	0.1	98.3
The University of Dundee	360	360	355	110	5	0	0	0	149	0.1	98.4

Table A1: Sandwich course participation by UK Higher Education Institution cont'd

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
University of Durham	45	100	115	110	40	230	205	220	133	0.1	98.5
Swansea University	75	95	115	115	140	140	180	205	133	0.1	98.6
The University of Cambridge	115	105	55	0	100	195	190	255	127	0.1	98.7
The University of Lancaster	120	115	105	105	105	130	145	175	125	0.1	98.8
The University of Glasgow	205	140	95	65	55	140	135	135	121	0.1	98.9
The University of Manchester Institute of Science and Technology	535	395	0	0	0	0	0	0	116	0.1	99.0
London South Bank University	195	205	110	90	95	90	60	75	115	0.1	99.1
The University of Northampton	270	220	150	25	15	20	25	20	93	0.1	99.2
The University of Hull	90	65	50	95	100	115	105	75	87	0.1	99.3
Bangor University	275	40	70	45	70	55	60	65	85	0.1	99.4
The University of Leicester	65	115	110	100	90	75	75	15	81	0.1	99.4
The University of Exeter	50	80	70	110	60	50	60	105	73	0.1	99.5
The University of Southampton	0	0	0	0	0	0	0	495	62	0.1	99.5
The University of Chichester	90	110	115	25	25	30	30	30	57	0.0	99.6
The University of Birmingham	50	40	45	45	55	55	65	65	53	0.0	99.6
King's College London	50	80	40	35	90	55	30	40	53	0.0	99.7
Buckinghamshire New University	80	120	50	40	45	30	25	15	51	0.0	99.7
The University of Warwick	35	35	50	45	60	60	55	55	49	0.0	99.8
The University of Oxford	0	0	0	0	0	105	105	110	40	0.0	99.8
The University of East London	85	50	55	40	30	20	15	5	38	0.0	99.8
The University of Essex	20	25	35	30	30	35	35	35	31	0.0	99.9
The University of East Anglia	30	25	15	5	20	25	25	55	25	0.0	99.9
University of Chester	40	35	45	35	20	10	10	0	24	0.0	99.9
University of Bedfordshire	35	25	15	25	15	35	20	10	23	0.0	99.9
The University of Liverpool	30	15	10	20	15	15	10	15	16	0.0	99.9

Table A1: Sandwich course participation by UK Higher Education Institution cont'd

Institution	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	8 yr Average	cohort %	Cumulative %
The University of Worcester	20	20	25	10	0	0	5	15	12	0.0	99.9
Writtle College	40	0	0	0	20	15	10	0	11	0.0	99.9
The University of Bolton	20	15	5	5	5	15	10	5	10	0.0	100.0
UHI Millennium Institute	30	0	0	0	10	40	0	0	10	0.0	100.0
The University of Sussex	10	10	10	10	10	10	5	10	9	0.0	100.0
Canterbury Christ Church University	20	20	15	0	0	0	0	0	7	0.0	100.0
Cranfield University	30	0	0	0	0	0	0	0	4	0.0	100.0
The University of Keele	5	5	0	0	0	10	5	5	4	0.0	100.0
The University of Aberdeen	0	0	0	0	0	10	5	10	3	0.0	100.0
University of Abertay Dundee	5	0	0	10	10	0	0	0	3	0.0	100.0
Queen Mary and Westfield College	0	0	0	0	0	15	5	5	3	0.0	100.0
University College London	0	0	0	0	0	10	10	5	3	0.0	100.0
Bath Spa University	0	0	0	0	5	5	5	5	3	0.0	100.0
University of Cumbria	0	0	0	0	0	5	10	5	3	0.0	100.0
Edge Hill University	0	0	5	0	5	5	0	0	2	0.0	100.0
Goldsmiths College	0	0	0	0	0	0	0	5	1	0.0	100.0
The University of St Andrews	5	0	0	0	0	0	0	0	1	0.0	100.0

Appendix 2

This table is quoted from "Engineering UK 2011" [2] and the purposes of presence are to demonstrate the provision of "engineering discipline" in the UK education community and the work placement participators for each category.

	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10
(H0) Broadly-based programmes within engineering & technology	10	10	0	0	0	0	0	0
(H1) General engineering	1225	1580	1740	1155	1055	905	1015	900
(H2) Civil engineering	1750	1655	2300	1890	2115	2160	2860	2420
(H3) Mechanical engineering	3240	3285	3290	3620	3560	3915	3970	4170
(H4) Aerospace engineering	1080	965	930	1025	985	1110	1070	1180
(H5) Naval architecture	15	0	0	75	30	50	95	80
(H6) Electronic & electrical engineering	3805	3485	2850	2705	2875	2985	3000	3100
(H7) Production & manufacturing engineering	1585	1270	890	775	690	695	740	710
(H8) Chemical, process & energy engineering	520	495	465	545	620	710	765	820
(H9) Others in engineering	55	90	110	105	130	135	90	115
Totals	**13285**	**12835**	**12575**	**11895**	**12060**	**12665**	**13605**	**13495**

Table 4: Participation in engineering sandwich degree courses by JACS subject code: all domiciles, all years

Appendix 3

This table is quoted from "Engineering UK 2011" [2] and the purpose of presences are to demonstrate the number of work placement participators for each category of engineering discipline in the individual university in academic year 2008-2009.

Annexe B: Sandwich course participation by JACS Engineering subject (2008/09): all domiciles, all years

Institution	Sandwich (H1) General engineering	Sandwich (H2) Civil engineering	Sandwich (H3) Mechanical engineering	Sandwich (H4) Aerospace engineering	Sandwich (H5) Naval architecture	Sandwich (H6) Electronic & electrical engineering	Sandwich (H7) Production & manufacturing engineering	Sandwich (H8) Chemical, process & energy engineering	Sandwich (H9) Others in engineering	sandwich total
Loughborough University	0	315	555	145	0	250	255	175	0	1870
Coventry University	15	315	370	165	0	160	0	0	0	1025
The University of Northumbria at Newcastle	0	460	135	0	0	415	10	0	0	1020
The University of Bath	0	60	290	110	0	90	15	170	0	905
The University of Surrey	0	200	120	125	0	180	0	80	0	785
The University of Portsmouth	0	200	165	0	0	240	115	0	0	720
University of Ulster	175	155	140	0	0	75	100	0	0	645
Sheffield Hallam University	130	0	250	5	0	195	20	0	40	640
Aston University	5	5	90	0	0	55	150	130	0	565
University of Hertfordshire	55	0	230	190	0	85	0	0	0	560
The University of Huddersfield	25	0	230	0	0	245	5	0	0	505
University of the West of England, Bristol	110	50	115	50	0	170	10	0	0	505
Brunel University	50	15	195	90	0	130	5	0	0	485
The University of Teesside	70	110	50	0	0	120	0	60	0	470
The University of Manchester	0	5	15	20	0	75	0	130	0	375
Cardiff University	10	195	75	0	0	55	5	0	0	340
Oxford Brookes University	0	0	295	0	0	10	0	0	0	305
The University of Bradford	20	85	70	0	0	65	15	0	10	265
Kingston University	0	110	60	75	0	0	0	0	0	245
The Nottingham Trent University	50	175	0	0	0	0	0	0	0	225
University of Glamorgan	25	80	5	0	0	90	10	0	0	210
Harper Adams University College	0	0	205	0	0	0	0	0	0	205
Staffordshire University	0	0	75	5	0	25	5	0	40	150
Southampton Solent University	50	0	0	0	95	0	0	0	0	145
The University of Brighton	0	45	45	10	0	20	0	0	0	120
The University of Bristol	110	0	0	0	0	0	0	0	0	110
The Queen's University of Belfast	0	35	35	0	0	10	0	5	0	90
Swansea University	0	20	15	20	0	0	5	15	0	90
Leeds Metropolitan University	0	90	0	0	0	0	0	0	0	90

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Institution	Sandwich (H1) General engineering	Sandwich (H2) Civil engineering	Sandwich (H3) Mechanical engineering	Sandwich (H4) Aerospace engineering	Sandwich (H5) Naval architecture	Sandwich (H6) Electronic & electrical engineering	Sandwich (H7) Production & manufacturing engineering	Sandwich (H8) Chemical, process & energy engineering	Sandwich (H9) Others in engineering	sandwich total
The University of Sheffield	0	0	35	35	0	5	0	0	0	75
Birmingham City University	5	0	5	0	0	50	5	0	0	65
Bournemouth University	65	0	0	0	0	0	0	0	0	65
Liverpool John Moores University	0	55	0	0	0	5	0	0	0	60
The University of Plymouth	0	25	10	0	0	15	5	0	0	55
The City University	0	25	5	5	0	10	0	0	0	45
The University of Salford	0	20	0	25	0	0	0	0	0	45
The University of Leicester	5	0	15	0	0	20	0	0	0	40
The University of Kent	0	0	0	0	0	30	0	0	0	30
The Manchester Metropolitan University	5	0	15	0	0	5	0	0	0	25
The University of Birmingham	25	0	0	0	0	0	0	0	0	25
The University of York	0	0	0	0	0	20	0	0	0	20
University College Birmingham	0	0	0	0	0	20	0	0	0	20
Aberystwyth University	0	0	0	0	0	15	0	0	0	15
The University of Reading	0	0	0	0	0	15	0	0	0	15
The University of Westminster	0	0	0	0	0	15	0	0	0	15
The University of Greenwich	0	5	5	0	0	5	0	0	0	15
London South Bank University	0	0	5	0	0	5	5	0	0	15
Imperial College of Science, Technology and Medicine	0	0	15	0	0	0	0	0	0	15
The University of Central Lancashire	0	0	10	0	0	0	0	0	0	10
London Metropolitan University	0	0	0	0	0	5	0	0	0	5
King's College London	0	0	0	0	0	5	0	0	0	5
De Montfort University	0	0	5	0	0	0	0	0	0	5
University of Derby	5	0	0	0	0	0	0	0	0	5
The University of Sunderland	0	0	5	0	0	0	0	0	0	5
Course Totals	**1010**	**2855**	**3960**	**1075**	**95**	**3005**	**740**	**765**	**90**	**14360**

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Appendix 4(a)

The tables in Appendix 4(a) and 4(b) are both quoted from "Engineering UK 2011" [2] and the purposes of presence are to reveal the important generic skills rated by engineering students and establish the provision of "generic skills" in this research project.

Table 21.4: Main causes of hard-to-fill vacancies by all with a hard-to-fill vacancy and occupation (2009) – England[230]

	Total	Managers and senior officials	Pro-fessionals	Associate pro-fessionals	Administra-tive staff	Skilled trades people	Sales and customer service staff	Machine operatives	Elementary staff	Unclassified staff[231]
Weighted base	8,331	717	1,656	1,598	563	3,055	444	759	392	99
Low number of applicants with the required skills	61%	60%	64%	64%	55%	61%	53%	60%	19%	9%
Lack of work experience the company demands	36%	59%	28%	35%	32%	35%	33%	29%	33%	29%
Lack of qualifications the company demands	19%	29%	18%	13%	23%	23%	8%	16%	5%	0%
Low number of applicants with the required attitude, motivation or personality	14%	20%	4%	12%	13%	16%	13%	17%	2%	10%
Not enough people interested in doing this type of job	13%	3%	13%	5%	18%	14%	16%	9%	30%	8%
Low number of applicants generally	11%	7%	6%	12%	17%	13%	11%	2%	6%	0%
Poor terms and conditions (eg pay) offered by post	8%	4%	7%	11%	20%	4%	12%	1%	9%	53%
Other	5%	8%	1%	6%	11%	5%	2%	0%	19%	0%

Source: NESS 2009 (employer base)

230 All answers below 5% have been excluded from this table

231 Caution should be exercised when looking at unclassified staff due to the small base size

Appendix 4(b)

Table 21.5: Skills found difficult to obtain from applicants by all with a skills shortage vacancy and occupation (2009) - England[232]

	Total	Managers and senior officials	Pro-fessionals	Associate pro-fessionals	Administra-tive staff	Skilled trades people	Sales and customer service staff	Machine operatives	Elementary staff	Unclassified staff[233]
Weighted base	6,902	702	1,394	1,333	385	2,545	318	604	183	37
Technical, practical or job-specific skills	73%	72%	71%	71%	42%	77%	80%	69%	67%	100%
Customer handling skills	36%	31%	21%	37%	54%	35%	67%	44%	50%	20%
Problem solving skills	35%	38%	24%	34%	42%	37%	28%	38%	56%	0%
Management skills	34%	61%	21%	40%	41%	33%	39%	17%	22%	20%
Written communication skills	33%	23%	24%	38%	49%	32%	13%	35%	58%	0%
Team working skills	29%	28%	13%	20%	43%	33%	43%	49%	46%	0%
Oral communication skills	29%	23%	20%	35%	31%	26%	40%	40%	58%	0%
Literacy skills	28%	28%	17%	23%	50%	29%	23%	36%	53%	0%
Numeracy skills	25%	17%	17%	20%	37%	28%	21%	28%	44%	23%
IT professional skills	19%	11%	16%	19%	28%	21%	42%	5%	9%	0%
General IT user skills	18%	20%	6%	13%	31%	20%	36%	20%	9%	0%
Office admin skills	17%	5%	11%	15%	33%	19%	25%	12%	9%	0%
Foreign language skills	13%	6%	9%	13%	6%	16%	17%	4%	13%	57%
No particular skills difficulties	5%	2%	11%	1%	5%	3%	0%	15%	17%	0%
Don't know	5%	6%	7%	8%	2%	5%	3%	1%	0%	0%

Source: NESS 2009 (employer base)

232 All answers below 5% have been excluded from this table

233 Caution should be exercised when looking at unclassified staff due to the small base size

Appendix 5

Questionnaire

Section ONE:

This section is used to understand responses' demographic information and all of the information gathered in this questionnaire will be treated confidentially. Please click the appropriate box.

1. Your undergraduate degree is awarded by which university as following?

A. University of York □ B. University of Surrey □
C. Nottingham Trent University □ D. Sheffield Hallam University □
E. University of Huddersfield □

2. What's your gender?

A. Female □ B. Male □

3. Which year do you graduate?

A. 2010 □ B. 2011 □ C. 2012 □ D. 2013 □

4. What is your age when graduate from university?

A. 19-21 B. 21-25 C. 26-30 D. Over 30

5. Is the work placement integrated with your study program?

A. Yes □ B. No □

6. Are there any supervisors from academic or work place allocated for your work placement experience?

A. Yes □ B. No □

7. Is formal assessment on the learning outcomes from work placement required by your university?

A. Yes □ B. No □

Section TWO:

This section is used to insight respondents' perceptions towards the development of generic skills and abilities while at university. Please indicate how much you agree or disagree with the following statements.

Survey Question	**Strongly Disagree**	**Disagree**	**Unsure**	**Agree**	**Strongly Agree**
1. When I was at university it seemed more important for my future career prospects to acquire knowledge related to my degree than to develop my generic skills and abilities.	☐	☐	☐	☐	☐
2. I did not have sufficient opportunities to develop generic skills and abilities during my undergraduate degree.	☐	☐	☐	☐	☐
3. University teaching staff made me aware of the importance of generic skills and abilities during my undergraduate degree.	☐	☐	☐	☐	☐
4. My university work placement was more important for enhancing my prospects for employment after graduation than for developing my generic skills and abilities.	☐	☐	☐	☐	☐
5. My university work placement did not provide sufficient opportunities for me to develop my generic skills and abilities.	☐	☐	☐	☐	☐
6. At university I was required to reflect on how my university work placement contributed to the development of my generic skills and abilities.	☐	☐	☐	☐	☐
7. During my university placement I was required to apply the generic skills and abilities learn in my undergraduate degree.	☐	☐	☐	☐	☐
8. It is important for me continue to develop my generic skills and abilities in the workplace as an employee.	☐	☐	☐	☐	☐
9. My employer creates sufficient opportunities for me to further develop me generic skills and abilities in the workplace.	☐	☐	☐	☐	☐
10. My place of employment after graduation was so different from university that it was hard for me to apply the generic skills and abilities that I had developed at university.	☐	☐	☐	☐	☐
11. My development of generic skills and abilities during university work placement gave me a definite advantage when it came to finding employment after graduation.	☐	☐	☐	☐	☐

Section THREE

This section is used to explore the understanding towards information obtained in Section TWO. Please respond it with honesty.

1. If you think you have had sufficient opportunities to develop generic skills while at university, please identify the best ways to develop generic skills while at university.
   A. Group work □
   B. Meeting with your supervisor □
   C. Seminar session □
   D. Generic skills based training or courses □
   E. Others please identify: _____

2. If you think you have had sufficient opportunities to develop generic skills while **at university**, what is the scope of those generic skills?

3. Could you fill the form with some suggestions for improvement of generic skills learning activities from the graduates at university?

4. Could you identify the ways in which they best developed particular generic skills during **work placement** were collated?

5. Could you fill the form with some suggestions for improvement of generic skills during **work placement**?

6. Do you believe that the generic skills and abilities developed as a result of your university work placement have contributed to advancement in your career?

   A. Yes □ B. No □

7. If you agree with that a number of professional development opportunities in the early years of employment, what do you think those opportunities depend on, e.g. attitudes towards employer or supervisor.

8. Could you identify the ways in which they best developed particular generic skills in **employment**?

9. Do you have any additional comments towards the development of generic skills in the context of university, work placement or employment? If you do, please write down your idea in the following box.

GLOSSARY

AC	Abstract Conceptualisation
AE	Active Experimentation
ASET	Association of Sandwich Education and Training
CE	Concrete Experience
CNAA	Council for National Academic Awards
HEA	Higher Education Academy
HE	Higher Education
HEIs	Higher Education Institutions
NACE	National Association of Colleges and Employers
QAA	Quality Assurance Agency
RO	Reflective Observation

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