A literature review looking at graduate employability skills (GESs)

GES App Report 1: Review of the GES literature

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Executive Summary

This review aims to identify how graduate employability skills (GES) are conceptualised in the literature and which skills are emphasised from a range of perspectives, which will inform the design of the GES App. The review draws upon a range of international studies, including those which have employed interviews, focus groups, surveys, and analysis of graduate job advertisements. In the review we identify and define the myriad of ways in which graduate employability skills are conceptualised, from the perspectives of employers and students, as well as within policymaking. We consider different GES frameworks, identifying common features and compare these with models of employability utilised within Higher Education institutions. We conclude with recommendations for the development of the Graduate Employability Skills App.

1 Graduate employability from theoretical and Higher Education perspectives

The aim of the graduate employability skills (GES) App is to help university students develop employability skills. In order to do this, we must first establish what employability skills are, and how they are contextualised within Higher Education (HE) and beyond. To achieve this, a literature review was conducted with the aim of identifying how graduate employability skills (GES) are conceptualised and which skills are emphasised by Higher Education institutions, students, employers and within policymaking. This review draws upon studies utilising interviews, focus groups, questionnaires, online surveys as well as analyses of job advertisements. When students' skills are discussed in the literature, and referred to in strategic plans of educational bodies and institutions, there is often confusion over some of the terms used, with jargon used interchangeably and the specific meaning of key concepts unclear. Student skills and employability skills, for example, are frequently discussed in conjunction with attributes, competencies, attitudes, and abilities. In this section of the review, we attempt to define and distinguish these different concepts. Having defined GES, we then discuss existing frameworks of GES, and the common features they share. Finally, we compare these to existing models of graduate attributes promoted by universities and discuss how the skills graduates possess may meet employers' expectations.

1.1 Definitions of GES and related concepts

Universities are expected to develop graduates' employability to prepare students for the world of work (Suleman, 2017; Cassidy, 2006; Cedefop, 2017). The

concept of employability has increased significantly in importance since the 90s. It is now considered a central objective of education policy not only by the European Union (EU), but also by the United Nations Organisation (UNO) and Organisation for Economic Co-operation and Development (OECD; Wiepcke, 2009). Graduates are employable if they possess skills that are required by businesses, referred to in the literature as employability skills (Ciarocco & Strohmetz, 2018; Husaina et al., 2010).

Skills and abilities have the definition of competence in common. The definition of competence has varied over the last couple of decades, but most of the proposed definitions include a mix of the term's skills and abilities together with knowledge (Petersen & Heikura, 2010). The European Centre for the Development of Vocational Training (Cedefop, 2017) defines competence as "actually achieved learning outcomes, validated through the ability of the learner autonomously to apply knowledge and skills in practice, in society, and at work" (Cedefop, 2017, p. 30). This shows that both skills and abilities are part of the concept of competence for educational purpose. While knowledge refers to facts, procedures, principles, and theories, skills are associated with the mental operations that process this knowledge (Jingura & Kamusoko , 2019). When considering abilities, we are rather in the sphere of intelligence (Ananiadou & Claro, 2009; Belwal et al., 2017; Ornellas et al., 2019), while skills take us into the sphere of competence (Hora et al., 2018; Washer, 2007; St Jorre & Oliver, 2018).

Learning outcomes, or statements of what a learner is expected to know, be able to do and understand at the end of a learning sequence, play an increasingly important role in efforts to improve the quality and relevance of education and training in Europe. The way such outcomes are defined and written orients teaching and

learning and influences the quality and relevance of education and training. The way learning outcomes are defined and written matters to individual learners, the labour market and society in general. The definition of learning outcomes requires systematic reflection on the use of labour market intelligence and how this will be balanced with the needs of the education and training system and of teachers, to support education, training and learning. To ensure that the learning outcome is relevant, it is developed on the basis of a 'feedback loop' where the education and training system are constantly challenged by experiences from the labour market and society. Cedefop (2017) visualizes such a "feedback loop" as shown in Figure 1.

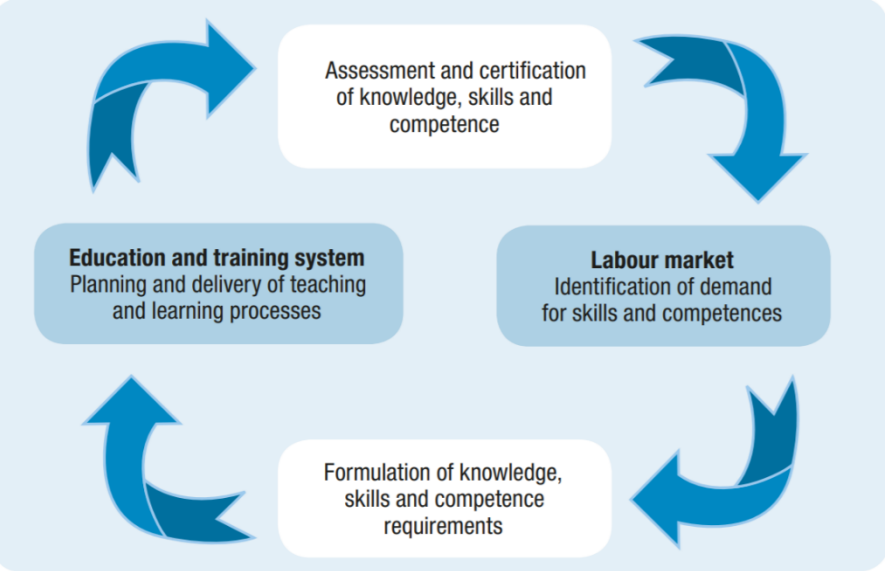

Figure 1. The feedback loop education-training and labour market (Cedefop, 2017, p. 27*)*

The learning outcomes are based on the quality agreement of higher education in Europe, the Bologna Process and the European Qualifications Framework (EQF), which ensure comparability in the standards and quality of higher education qualifications (European Commission/EACEA/Eurydice, 2018).

The EQF is a common European reference framework whose purpose is to make qualifications more readable and understandable across different countries and systems. Today many countries in Europe develop national qualifications frameworks (NQFs) to implement the EQF. National qualifications frameworks (NQFs) classify qualifications by level, based on learning outcomes. Such frameworks help to make qualifications easier to understand and compare and can make it easier to judge the match between society's needs and the programmes and qualifications offered within education and training (Cedefop, 2017). The Norwegian qualifications framework for lifelong learning (NKR) was adopted by the Ministry of Education and Research on 15 December 2011, means that the qualifications must be described through the students' learning outcomes and not through input factors, such as the number of teaching hours and the syllabus (Ministry of Education and Research, 2011). This has led to predictability for actors both within and outside the educational institutions and Norwegian social partners generally see the NKR (and the EQF process) as important and as a way to strengthen the dialogue between education and training and the labour market (Cedefop, 2017).

It is worth noting that in the EU FP6 program, several projects focused on understanding competence and the competence development process in a life-long learning context. The resulting models and concepts attempted to bridge work processes and the development of competences and skills from an employer's perspective. Nevertheless, they delved into these concepts and provided deep insights to help our understanding of these concepts from the employability perspective. Some of the relevant projects include PROLEARN on workplace and experiential learning (https://prolearn-project.org) while others, such as TEN Competence (TEN Competence, 2007), focus on learning supported by online communities and view

competence as a combination of competency, proficiency, and context (De Coi et al., 2007). Furthermore, they also note that a competence is an individual, situational disposition, and it is a latent attribute identified by the Community of Practice (Kew, 2007).

Traditionally, educators have organised learning content in a way that mirrors the structures of academic disciplines, such as biology, mathematics, and history. The learner is therefore implicitly supported to construct their own cognitive structure in a way that follows the same academic discipline structure. Real-life problems and challenges, however, rarely fall neatly into the field of a single discipline. Similarly, assessments are based on what a student has learned rather than the non-directly observable constructs and how a student may apply what has been learned. As a consequence, the students have gaps in their cognitive structures, which could affect the way they apply their competences (Cowley et al., 2012).

Understanding employability skills and related concepts (e.g., competences) requires exploring the relations among a number of issues, including how one would apply a competence in a particular context. Organisational, societal, and cultural contexts differ across situations. The ability to judge and act appropriately in different contexts is desirable to perform well in employment. This also highlights that a particular competence seen in isolation is perhaps not sufficient, and competences must be seen in context and in relation to other competences (e.g., any competence may be a composite of a number of competences). The Organisation, Knowledge, Environment, and Individual (OKEI) framework proposed in the EU TARGET project is one of the few frameworks that took these ideas into account (see Figure 2).

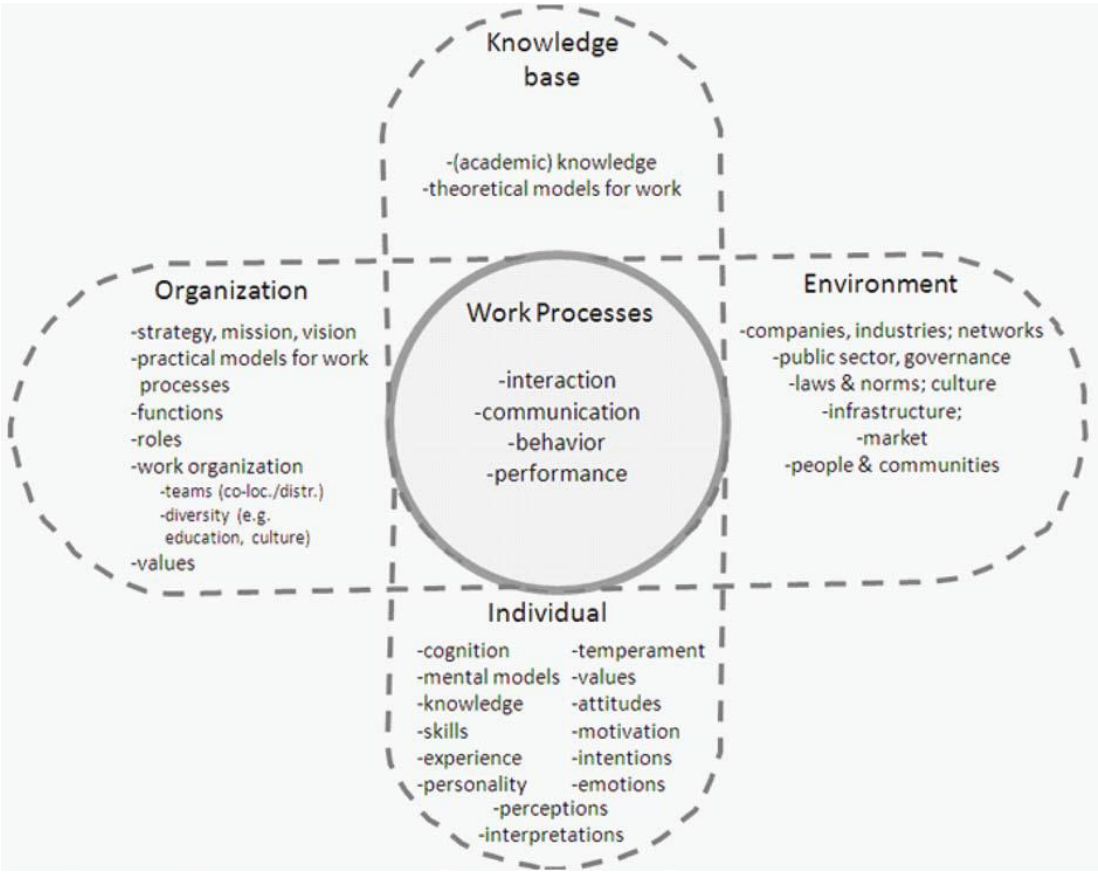

Figure 2. OKEI competence modelling framework *(Petersen & Heikura, 2010)*.

The OKEI competence modelling framework (Petersen & Heikura, 2010) was developed to assist rapid competence development using educational games, and it considers and organises four factors (organisation, knowledge, environment, and individual) in in a way that resembles real-life situations where the learning outcome is meant to be applied. This framework is based on the understanding that an individual involved in a work process approaches the work situations emerging in the context with the help of individual resources (e.g. knowledge, skills, experience, and mental models) and, at the same time, views them through their individual 'lenses' (e.g. a person's motivation affects what they perceive in the external environment). This means that an employee's competences are seen from the perspectives of the

knowledge applied at the micro (individual), meso (organisation), and macro (wider operational environment or society) levels. The relationships among the four factors are seen as multidirectional and in time, all of the factors change as result of the interaction. A brief description of the four factors is given below:

- **Organisation**: This factor or dimension represents organisational aspects that influence the work performance and the application of competences. For example, depending on what role and position one holds in an organisation, certain communication styles are either appropriate or inappropriate. The carelessly chosen words of a CEO can send the stock value of the company plummeting, whereas equally carelessly chosen words of a midlevel manager would not have such an effect.

- **Knowledge**: This dimension refers to the external knowledge resources that could be useful to apply or exercise in the work task at hand, such as theoretical knowledge studies at university. For example, a person who is confronted by a communication dilemma can perform better if they access and interact with new, external knowledge resources (e.g., on different communication styles or approaches).

- **Environment**: This dimension considers the context outside of the organisation, such as networks, governance, laws and norms, existing technologies, etc. These can play a role in defining the success of work performance. For example, if a person needs to communicate regarding a product, they need to do it in a

way that is not offensive towards the local culture and taste, and in accordance with local consumer law.

- **Individual**: This dimension refers to individual and personal factors that may be applied in work situations and have varying connections to one's performance level, such as past experiences, personality traits, mental models, attitudes, and motivation. For example, in a communication task, one's emotions could easily 'interfere' if not managed appropriately.

The OKEI framework not only clarifies the relationship between competence and employability, but also confirms how employability depends on several factors, and it is in the sphere of competence and within skills that we find employability. In the magic bullet model, Harvey (2001) describes employability as somehow being given to students as a result of them having been students, leading them to being employed. The model is simplistic, and employability is rather more complex in any case because HE institutions provide a wide range of employability-development opportunities for students (Harvey, 2001). According to Suleman (2017), graduates should be educated and trained in order to acquire skills that fit employers' needs. In fact, employers find employability skills to be most important (Husaina et al., 2010) and the reason might be that employers see employability skills as competences in themselves that student should hold. This implies that graduates' competence in employability skills could provide advantages when applying for jobs and in their subsequent work settings (Abas & Imam, 2016; Drange et al., 2018.

It can be assumed that the meaning of the concept of competence is broader than the concept of skills because competencies incorporate a set of skills together with abilities and knowledge (Kennedy et al., 2009). Skills can be limited to the capability of coping with specific practical tasks, whereas competencies usually involve skills that jointly determine the effectiveness of undertaken behaviours (Washer, 2007). Employability skills can thus be defined as the transferable skills needed by an individual to make them employable. Along with good technical understanding and subject knowledge, employers often outline a set of skills they want from an employee.

It follows from the review above that there is agreement on the differences between these terms' abilities, skills and competence, even if they may seem a bit blurry. For the purposes of developing the GES App, we propose a distinction between the terms skills, competences, and abilities, and adopt the term employability skills. because it deals with transferable skills needed by students to make them employable, which is also what employers look for in an employment process. Employability skills is also a term used by both employers and employees, and it might be important not to create more confusion. Moreover, this distinction corresponds to such differentiation functioning in the field of Human Resources (HR) and in educational programmes (Cedefop, 2017; Kennedy et al., 2009; Hayton et al., 2005). HR is an area where the practical significance of outcomes of the GES App project may be particularly important.

1.2 Frameworks of employability skills

Having established how employability skills are defined, it is important to consider how these are conceptualised in the context of HE. There are many different

frameworks of employability skills, but this section concentrates on those that that categorise and distinguish between different skills. Many frameworks have been proposed from across the globe, including the UK, the USA, and Australia. Each framework proposes its own sets and subsets of skills, although there are many commonalities. Below, we describe some of these frameworks.

UK

- **The Scottish Directorate General (DG) Employability Skills Framework** (https://dgtap.co.uk) identifies 10 skills - positive attitude, self-management, teamwork, application of numeracy and IT, problem solving, communication, literacy, leadership, and entrepreneurship.

- **The Confederation of British Industry (CBI) Skills Framework**. The (CBI; https://dgtap.co.uk) is a UK business organisation that works to promote business interests by working with the government. It identifies six broad skill sets - communication, interpersonal, research and using information, strategic and business thinking, managing and leading others, and planning and organisation - and identifies subskills for each. It has a marked business focus, and therefore provides a useful framework for employability skills in the business sector.

- **The Advance HE (formerly HE Academy) Framework for Embedding Employability** (https://advance-he.ac.uk) is a UK professional membership scheme promoting excellence in HE. Their framework identifies ten important aspects of employability that HE institutions should embed in their curricula. These include specialist, technical, and transferable skills; attributes and

capabilities; knowledge and application; behaviours, qualities, and values; enterprise and entrepreneur education; career guidance and management; reflection and articulation; self, social, and cultural awareness; confidence, resilience, and adaptability; and experience and networks.

USA

- **The Common Framework for Employability Skills** (https://cte.ed.gov) identifies three skill supersets - effective relationships, workplace skills, and applied knowledge, with subsets as follows:
    - *Effective relationships***:** Interpersonal skills and personal qualities
    - *Workplace skills*: technology use, systems thinking, communication skills, resource management
    - *Applied knowledge*: applied academic skills, critical thinking skills

  Effective relationships incorporate intrapersonal as well as interpersonal skills. Applied knowledge refers to learning and academic skills, while workplace skills refer to a variety of skills, including, for instance, IT skills that are useful in the workplace.

- **The National Network of Business and Industry Associations (NNBA) framework** (https://nationalnetwork.org) proposes four broad sets of skills, each with different subskills:
    - *Personal skills*: integrity, initiative, dependability, reliability, adaptability, professionalism
    - *People skills*: teamwork, communication, respect

- *Workplace skills*: planning and organisation, problem solving, decision making, business fundamentals, customer focus, working with tools and technology
- *Applied knowledge*: reading, writing, mathematics, science, technology, critical thinking

Australia

- **The Australian Core Skills Framework** (https://employment.gov.au) outlines four broad skill sets as well as knowledge, skills, and attitudes that belong to a particular set. The terminology is unusual, but the general view on skills is similar to those in the other frameworks.
  - *Manage yourself in the world of work*: direct and manage own career and work life, manage own behaviour, understand and work with workplace protocols
  - *Work effectively with others*: understand and work with roles and responsibilities; contribute, influence and lead; negotiate and resolve conflict
  - *Get the job done*: plan, organise and implement; make decisions; recognise and solve problems; use ICT to accomplish tasks, develop new ideas and approaches
  - *Learn and develop*: understand and manage self as a learner; understand and apply strategies for learning

- **The Victoria Employability Skills Framework** (https://education.vic.gov.au) proposes eight higher-level skills – communication, learning, problem solving, technology, teamwork, initiative and enterprise, planning and organisation, and self-management.

The skills identified in the frameworks described above are highly similar (though not identical). This should come as no surprise since the frameworks were developed at different times and for slightly different purposes and stakeholders. Below, we further discuss six skills that are incorporated in one form or another in all the frameworks. These include: communication skills, teamwork skills, learning and academic skills, IT/digital skills, workplace skills, and self-management in the workplace.

- **Communication skills** are incorporated as a separate set of skills in all the frameworks, except for the NNBA one which includes communication skills as part of people skills and the Scottish DG Employability Framework which includes these skills along with literacy.
- **Teamwork skills** are mentioned in all the frameworks, though using slightly different labels. For instance, these are referred to as working effectively with others, effective relationships, and interpersonal skills in the US Common Framework for Employability Skills. Teamwork and communication skills are often regarded as components of the ability to work with others.
- **Learning and academic skills** are evident in almost all the frameworks. There are differences in labelling (e.g., research skills, learning, or applied

knowledge), but this set of skills tends to focus on ‘traditional’ academic skills, such as literacy and numeracy, as well as more ‘modern’ academic skills, such as problem solving and research skills. Some of the frameworks refer to these as cognitive or thinking skills.

- **Digital/IT skills** are included as part of learning and academic skills or as a set of skills on its own. This is because digital skills are to some extent similar to non-digital skills applied in a digital environment, in that they involve using digital technology to facilitate working with others, solving problems, acting in an ethical and responsible manner, and creating and sharing knowledge. In some cases, however, digital technology offers additional functionality over and above traditional skills, providing new ways of performing different tasks at work.
- **Workplace skills** are often included as a separate set of skills. Some of the frameworks tend to focus on applying these skills in the business sector (e.g., commercial awareness, strategic and business thinking, initiative, leadership), whereas others are more generic and focus on encouraging students to apply the academic skills they already possess in any workplace.
- **Self-management in the workplace** is sometimes regarded as a separate set of skills and personal attributes that includes, for example, positive attitude, integrity, reliability, adaptability, and organisation and planning skills required to successfully operate in the workplace. Such skills could also be viewed as part of workplace skills, though it seems that some of the frameworks suggest that self-management additionally captures intrapersonal skills that are an important component of emotional intelligence as well as metacognition (one’s ability to reflect upon their learning).

The frameworks reviewed above tend to focus on skills, but it is important to note that some also mention personality characteristics and attitudes that are relevant to and impact on performance in the workplace, and are conceptualised under graduate attributes. Graduate attributes, and how employability skills are linked to these, are discussed below.

1.3 Graduate attributes

For many years employers have been dissatisfied with the skills possessed by graduates and disappointed in their ability to contribute effectively to the workplace (Sarkar et al., 2016). In some cases, this 'skills deficit' or 'competency gap' has been shown to result in unemployment amongst graduates as well as potential negative impacts on economies (Weligamage et al., 2003). Several skills have been identified as being expected of graduates by employers, but lacking in candidates. Such skills include communication, decision making, problem solving, leadership, emotional intelligence, and social ethics.

There is a disconnect between perceptions of employability that exist within governments, employers, and universities (for a review, see Lees, 2002). For many employers, academic knowledge of the subject a potential employee studies at university is not as important as a variety of other skills and personal and intellectual abilities. While both discipline-specific knowledge and technical competencies are expected from graduates, employers also require them to possess broader, generic abilities such as team-working, leadership, critical thinking, management abilities, and the ability to handle and process complex information effectively, and communicate this with others (Knight & Yorke, 2002).

Although individual institutions have long promoted graduate attributes, the last two decades has seen an increase in the focus on employability of graduates and education as a quality, lifelong process, and therefore an increased effort by institutions to develop graduate attributes and map these onto their curricula. For example, a study conducted in Australia (Nagarajan & Edwards, 2014) identified time management, teamwork, working with people, working across cultures, project management, and business skills as major graduate attributes sought by employers. Several countries have also developed frameworks and guidelines on which generic attributes graduates from their HE institutions should possess upon completion of their degrees (Nair et al., 2009). Below, we present some selected graduate attributes frameworks from within the UK and from other countries.

1.3.1 Graduate attributes in the UK

There is no general consensus within the UK on how graduate attributes are envisioned between institutions. Below, we briefly describe the frameworks of four Scottish institutions which exemplify the two approaches being taken by UK HE institutions. The University of the West of Scotland (UWS) and the University of Glasgow take a matrix-based approach, presenting distinct categories of skills and attributes, each containing several dimensions. The Universities of St. Andrews and Edinburgh, on the other hand, present distinct categories of graduate attributes which resemble mindsets/outlooks more than skills.

- **UWS** use the terms attributes and competencies interchangeably and present them as a matrix of academic, personal, and professional skills, each with the sub-categories of universal, work-ready, and successful (see Figure 3 below).

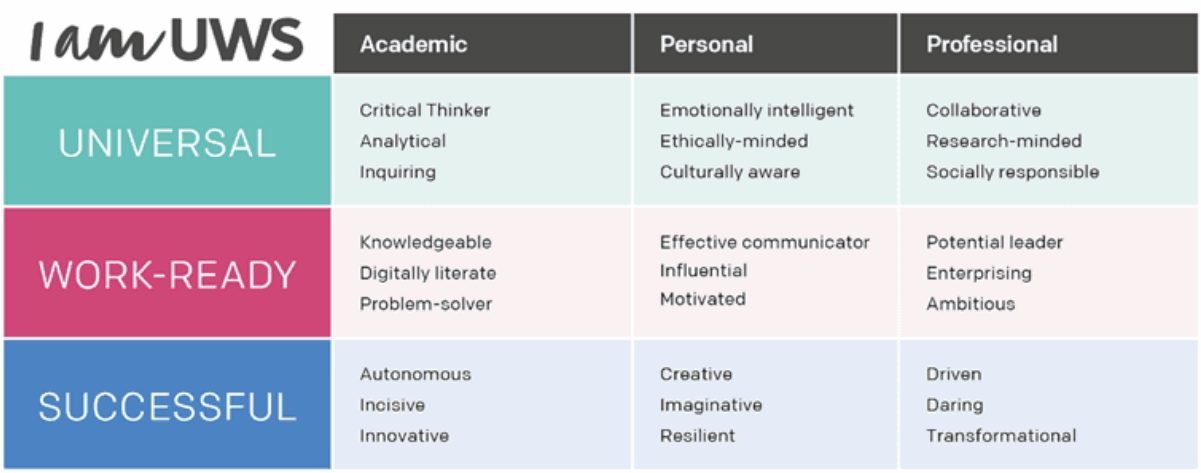

Figure 3. UWS graduate attributes (https://www.uws.ac.uk/current-students/your-graduate-attributes).

- **The University of Glasgow** also present their graduate attributes using a matrix with ten (rather than UWS's nine) specific skills, each comprising of an academic, personal, and transferable element (see Figure 4 below).

Attribute	Academic Dimension	Personal Dimension	Transferable Dimension
Subject Specialists	Understand and respect the values, principles, methods and limitations of their discipline(s).	Possess a breadth and depth of knowledge within their disciplinary area(s).	Possess discipline-relevant professional skills, knowledge and competencies.
Investigative	Are intellectually curious and engage in the pursuit of new knowledge and understanding.	Are able to locate, analyse and synthesise information from a variety of sources and media.	Are able to investigate problems and provide effective solutions.
Independent and Critical Thinkers	Identify, define and assess complex issues and ideas in a researchable form.	Exercise critical judgement in evaluating sources of information and constructing meaning.	Apply creative, imaginative and innovative thinking and ideas to problem solving.
Resourceful and Responsible	Are experienced in self-directed learning and authentic research-led enquiry.	Are motivated, conscientious and self-sufficient individuals capable of substantial independent work.	Manage their personal performance to meet expectations and demonstrate drive, determination, and accountability.
Effective Communicators	Articulate complex ideas with respect to the needs and abilities of diverse audiences.	Present their ideas clearly and concisely in high quality written and spoken English.	Communicate clearly and confidently, and listen and negotiate effectively with others.
Confident	Defend their ideas in dialogue with peers and challenge disciplinary assumptions.	Possess excellent interpersonal and social skills fostered within an internationalised community.	Demonstrate enthusiasm, leadership and the ability to positively influence others.
Adaptable	Experience multi-disciplinary and/or inter-disciplinary learning in an internationally renowned institution.	Respond flexibly and adapt their skills and knowledge to excel in unfamiliar situations.	Demonstrate resilience, perseverance and positivity in multi-tasking, dealing with change and meeting new challenges.
Experienced Collaborators	Engage with the scholarly community and respect others' views and perspectives.	Are experienced in working in groups and teams of varying sizes and in a variety of roles.	Conduct themselves professionally and contribute positively when working in a team.
Ethically and Socially Aware	Consider and act upon the ethical, social and global responsibilities of their actions.	Welcome exposure to the richness of multi-cultural and international experiences, opportunities and ways of thinking.	Have a practical and contemporary knowledge of relevant professional, ethical and legal frameworks.
Reflective Learners	Use feedback productively to reflect on their work, achievements and self-identity.	Set aspirational goals for continuing personal, professional and career development.	Identify and articulate their skills, knowledge and understanding confidently and in a variety of contexts.

Figure 4. University of Glasgow graduate attributes (https://www.gla.ac.uk/media/Media_183776_smxx.pdf)

- **The University of St. Andrews** categorise their graduate attributes under four headings - valuing diversity, leadership skills, entrepreneurial mindset, and global outlook (See Figure 5 below).

Figure 5. University of St. Andrews graduate attributes (https://www.st-andrews.ac.uk/careers/exploring-your-future/graduate-attributes)

- **The University of Edinburgh** promote graduate attributes as “attitudes and approaches – how you approach learning and knowledge, your own development, and the world around you”, rather than simply skills and abilities. They state that these should be discipline- and even student-specific, and cluster their graduate attributes into three ‘mindsets’ - equality and lifelong learning; aspiration and personal development; and outlook and engagement.

1.3.2 Graduate attributes outside the UK

To examine the situation outside of the UK, we focused on Australia as much of the published research in the area of graduate attributes and employability skills comes from HE institutions in this country. We looked at the graduate attributes of four Australian institutions - the University of New South Wales (UNSW), Monash University, the University of Sydney, and the University of Adelaide. For all institutions, stated graduate attributes were presented as lists (sometimes with sub-categories) rather than as a matrix.

- **UNSW** outlined four strands of graduate attributes they expected for their students:
    1. Scholars who are:
        a. understanding of their discipline in its interdisciplinary context
        b. capable of independent and collaborative enquiry
        c. rigorous in their analysis, critique, and reflection
        d. able to apply their knowledge and skills to solving problems
        e. ethical practitioners
        f. capable of effective communication

g. information literate

h. digitally literate

2. Leaders who are:

    a. enterprising, innovative and creative

    b. capable of initiating as well as embracing change

    c. collaborative team workers

3. Professionals who are:

    a. capable of independent, self-directed practice

    b. capable of lifelong learning

    c. capable of operating within an agreed code of practice

4. Global citizens who are:

    a. capable of applying their discipline in local, national, and international contexts

    b. culturally aware and capable of respecting diversity and acting in socially just/responsible ways

    c. capable of environmental responsibility

- **Monash University** outlined two major categories of graduate attributes, each with three subcategories. Monash graduates are expected to be:

1. responsible and effective global citizens who:

    a. engage in an internationalised world

    b. exhibit cross-cultural competence

    c. demonstrate ethical values.

2. critical and creative scholars who:

    a. produce innovative solutions to problems

b. apply research skills to a range of challenges
c. communicate perceptively and critical thinking/problem solving, and effectively

- **The Univerity of Sydney** outlines nine graduate ‘qualities’:
  1. Depth of discipline expertise
  2. Critical thinking & problem solving
  3. Oral and written communication
  4. Information & digital literacy
  5. Inventiveness
  6. Cultural competence
  7. Interdisciplinary effectiveness
  8. Integrated professional, ethical, and personal identity
  9. Influence

- **The University of Adelaide** outlines nine graduate attributes:
  1. Deep discipline knowledge and intellectual breadth
  2. Creative and critical thinking, and problem solving
  3. Teamwork and communication skills
  4. Professionalism and leadership readiness
  5. Intercultural and ethical competency
  6. Australian aboriginal cultural competency
  7. Digital capabilities
  8. Self-awareness and emotional intelligence

In contrast with UK universities, Australian universities do not present their attributes in matrices, but as (sometimes hierarchical) lists. As with GES frameworks, many of the categories of graduate attributes outlined by the different institutions overlap, and it is clear that some of the categories of employability skills map onto categories of graduate attributes (e.g., communication, problem solving, IT skills). Additional competences that exist in the lists of graduate attributes but not GES frameworks include a focus on specific cultural factors, and there is more emphasis on graduates' ability to apply their acquired skills in a professional context, rather than on merely possessing skills.

1.4 Summary

There is an expectation on the part of employers of the 'professional capability' of students (Scott & Yates, 2002) that graduates will come into the workplace with academic as well as more general employability skills. Although universities promote the graduate attributes of their students, and conceptualise these at an institutional level, 'generic' graduate attributes is misleading as a concept because generic terms may have different meanings within different disciplines. That said, practical considerations and the structure of most modern HE institutions require that a university-wide approach is necessary for the planning as well as implementation of graduate attributes (Green et al., 2009).

It is clear that any attempts to enhance graduate employability and lessen the skills deficit should (i) include employers in the process of identifying relevant GES and (ii) address both discipline-specific and generic skills, and (iii) emphasise not only the acquisition of relevant GES, but also the practicality of applying these skills in a professional context. In the following section of the review, we therefore turn to the

literature on employers' views on in-demand employability skills and graduates' work-readiness.

2 Graduate employability from an employer perspective

Structural changes to job markets have given rise to marked changes in employers' expectations of their graduate employees, placing demands on graduates to adapt to the rapidly evolving market environment and develop and demonstrate appropriate skills (Brown & Lauder, 1992; Possa, 2006). Employers seek graduates with an impressive array of skills and attributes, and have a highly specific notion of what makes one person more employable or suitable than the other. Whereas academics and policy makers may characterise employability as graduates' capability to gain and maintain employment, employers rarely use this term to begin with and tend to be more concerned with graduates' capability to make a tangible and immediate contribution to their business (Harvey, 2000; Holmes, 2001; see also Bennet et al., 2000; Rosenberg et al., 2012).

Graduates are often expected to have relevant work experience, which serves primarily to reassure employers that the applicants will be more mature and able to fit into the new work environment, requiring less supervision and training (Andrews & Higson, 2008). Graduates should also have a good degree, as demonstrated by findings that for graduate vacancies, the vast majority of UK-based employers would consider only those applicants that have at least an upper second (2:1) class degree[1] (Archer & Davison, 2008; Bennett, 2002 Branine, 2008). Critically, there seems to be little emphasis on the international ranking of the university itself. Data from the European Commission (2010) indicated that only 40% of employers preferred to recruit graduates from high-ranking HE institutions (see also Archer & Davison, 2008).

[1] Equivalent of 7.0-8.49 in Greece; B in Norway; 16-17 in Poland
Source: https://warwick.ac.uk/study/international/admissions/entry-requirements/#g

Employers also seek graduates with an array of generic skills and personal or intellectual attributes, such as communication, adaptability, willingness to learn, problem solving, and teamwork. In fact, there has been a remarkable change in the recruitment process, such that employers are becoming more interested in applicants' generic rather than technical skills (Greenwood et al., 1987; Gammie et al., 2002; Harvey, 2000; Hesketh, 2000; Liston, 1998; Meade & Andrews, 1995; Pollard et al., 2015; Succi & Canovi, 2019). This may be a response to the increasing supply of graduates - a way for employers to distinguish between applicants, all of whom hold a good degree, and are therefore assumed to have good-enough discipline-specific skills and knowledge (Buck & Barrick, 1987; Cox & King, 2006; Fallows & Steven, 2000; Lowden et al., 2011; Warn & Tranter, 2001). Graduates who have gained wide-reaching GES, over and above a certain level of competence in their discipline, are in particular demand. Employers seem to consider such graduates work-ready, and are more inclined to trust their ability to take initiative and make an immediate contribution (Andrews & Higson, 2008; Elliot et al., 1994; Greenwood et al., 1987; Harvey, 2000), especially within a smaller business (Stewart & Knowles, 2000). This is in line with growing evidence that employers do not place much importance on the degree subject studied, in that over 60% of graduate vacancies are open to graduates from any discipline as long as they possess desirable skills and attributes (Raybould & Sheedy, 2005).

It appears, then, that there is an increasing demand for graduates who can showcase a wide array of GES, as employers strive to recruit all-rounders who can demonstrate competence and confidence that they can make a difference to a business. Below, we review the relevant literature and delineate which skills and

attributes are particularly important to employers. We focus on studies utilizing survey and interview methodologies, as well as studies of job advertisements.

2.1 Interviews and survey studies with employers

Findings from interviews and surveys with employers have supported the view that the recruitment process tends to focus on applicants' generic skills and attributes, though attempts to establish which of these are in demand have produced inconsistent results. For example, Eustice (2010) reported that employers seek graduates who are skilled at leadership, time management, communication, initiative, teamwork, conflict management, and working under pressure. Wickramasinghe and Perera (2010) found that positive work attitude, self-confidence, teamwork, problem solving, and the ability to learn are often regarded as the most important skills that graduates wishing to work in software development should have. The European Commission (2010) suggested that most employers agree that teamwork, communication, computer literacy, adaptability, analytical thinking, problem solving, and sector-specific skills are the most important skills they look for when recruiting graduates. Lowden et al. (2011) reported that employers value a number of GES including teamwork, problem solving, self-management, knowledge of the business, IT skills, literacy and numeracy, interpersonal and communication skills, initiative, and leadership where necessary. The National Association of Colleges and Employers (NACE; 2016) posited that leadership, teamwork, problem solving, and communication are the most desirable skills, whereas Hart Research Associates (2015) suggested ethical judgement, decision making, and critical thinking as more important than leadership and problem solving. Focusing on attributes, rather than skills, Archer and Davison (2008) argued

that integrity, self-confidence, intellectual ability, and to a lesser extent personality are all a vital part of the graduate portfolio, whereas Right Management (2014) and Nicolescu and Paun (2009) suggested that graduates should first and foremost demonstrate resilience and adaptability.

Difficulties in pinpointing skills requirements are also evident in studies in which employers from different sectors explicitly rated skills and attributes in terms of their relative importance. For example, Kavanagh and Drennan (2008) reported that the top 10 GES in accounting are analytic thinking/problem solving, business awareness/'real life' experience, basic accounting skills, communication, ethics/fraud awareness/professionalism, teamwork, interpersonal skills, continuous learning, and the ability to work across different disciplines. In the business sector, the top 10 GES are the ability and willingness to learn, energy/passion, teamwork, interpersonal communication, customer service orientation, attention to detail, flexibility, problem solving, initiative, and achievement orientation (Hodges & Burchell, 2003). In the bioscience sector, employers consider the ability to question and listen, enthusiasm/willingness to learn, and attention to detail the most important, and commercial awareness, negotiation, and networking the least important (Saunders & Zuzel, 2010). In the finance sector, employers rank communication, commitment to work, teamwork, and the ability to learn highest, and management, conflict management/negotiation, leadership, contact network, and life balance skills lowest (Succi & Canovi, 2019). In the software development sector, there seems to be more emphasis on problem solving, positive attitude to work, and teamwork, and less so on decision making and literacy (Wickramasinghe & Perera, 2010). Taken together, the studies indicate that the question of which generic skills and attributes graduates should have may largely depend on the type of a sector they wish to work in.

2.2 Studies of job advertisements

Differences in skills requirements across sectors have also been shown in several studies of job advertisements. In particular, Bennett's (2002) analysis of advertisements for general management, marketing, finance, and HR management positions showed communication to be the most frequently required GES (see also Andrews & Higson, 2008; University of Surrey, 2000). Other GES included IT skills, organisation, teamwork, interpersonal skills, motivation, analytical thinking, self-confidence, numeracy, and initiative, followed by foreign language, leadership, adaptability, and presentation skills. Critically, more detailed analysis of the advertisements revealed more demand for initiative, motivation, and communication skills in marketing and general management, and for numerical and IT skills in finance.

Similar findings come from Osmani et al. (2019) who analysed advertisements for accounting and finance as well as information and communication technology positions. Their results showed that teamwork, communication, organisation, time management, and adaptability were the most frequently featured GES in the advertisements, followed by self-motivation, problem solving, leadership, and academic knowledge. As in Bennett (2002), there were noticeable differences between the two sectors in the relative importance of different GES, in that time management and academic knowledge were more desirable in accounting and finance, whilst problem solving and leadership were more desirable in information and communication technology. Osmani et al. (2019) also showed a slight mismatch between academics and employers as to which GES are in demand (see also Rosenberg et al., 2012; Wickramasinghe & Perera, 2010). Their results suggest that the former overestimate the importance of technological skills, creativity, critical thinking, willingness to learn, initiative, work experience, self-confidence, personality, independence, and

interpersonal skills, and that they underestimate the importance of academic knowledge, commercial awareness, organisation, conflict management, and the ability to understand a client's perspective. This suggests that the seemingly comprehensive lists of GES proposed and used by academics and policy makers to inform HE curricula may not adequately capture the skills requirements in today's job market.

2.3 Skills deficit

Strong demand for generic skills and attributes has also been evidenced by studies in which employers communicated that many graduates are not entirely work-ready (Horwitz, 2013; Humburg et al., 2015; Hurrell, 2016; Jackling & de Lange, 2009; Martin & Chapman, 2006; Pang et al., 2008; Pittaway & Thedham, 2005; Prinsley & Baranyai, 2015; Shuayto, 2013; Tate & Thompson, 1994; UK Commission for Employment & Skills, 2014). Although the precise magnitude of this skills deficit or competency gap remains somewhat controversial (see European Commission, 2010; Harvey & Green, 1994; Hesketh, 2000; Sarkar et al., 2016), this literature is certainly helpful in exploring which GES graduates need to develop (and be able to articulate and evidence) in order to find employment. There have been a few demonstrations that employers are most often dissatisfied with graduates' commercial awareness (Archer & Davison, 2008; Jackling & de Lange, 2009; Sarkar et al., 2016; Saunders & Zuzel, 2010), initiative (Bennett, 2002; Sarkar et al., 2016), foreign language skills (Bennett, 2002; European Commission, 2010), and the ability to work in a team (Hesketh, 2000; Jackling & de Lange, 2009). There is also some indication that graduates do not meet employers' expectations in terms of oral and written communication skills (Confederation of British Industry, 2010; Financial Services Skills

Council, 2006; Lamb, 1994), and that they should work on their grammar, punctuation, vocabulary choice, and public speaking to do so (Kotzee & Johnston, 2011; Stevens, 2005). These findings corroborate the view that generic skills and attributes are a vital part of the graduate portfolio.

2.4 Summary

In summary, the literature on employability from the employer perspective may seem somewhat contradictory, but what is clear is that graduates are expected to possess a wide array of generic skills and personal/intellectual attributes, as well as what may be thought of as sector- or discipline-specific skills and knowledge. This is supported by findings from interviews/surveys with employers on in-demand skills and graduates' work performance as well as analyses of job advertisements. There have been numerous attempts to establish which GES are particularly important to employers, though with varying degrees of success. This should come as no surprise given the growing evidence that the nature and extent of skills requirements differ to some extent depending on the country (Succi & Canovi, 2019) and sector the business is in (Bennett, 2002; Osmani et al., 2019) as well as its size and market orientation (Archer & Davison, 2008). Compiling a list of essential GES that would hold true for every graduate and employer is therefore a challenging, if not impossible, task, yet we note a few candidates for such a list. This literature review indicates that when asked about the most important skills they look for, employers most often cite communication, teamwork, leadership, and interpersonal skills, with initiative and adaptability topping this list of attributes. There is clear overlap here between the attributes that employers say they desire in graduate employees and those which universities claim their

graduates possess. This suggests that any skills deficit may be the result of a failure to either teach the stated employability skills, or to teach students how to apply their skills in an workplace context, rather than in how HE institutions conceptualise the skills and attributes their graduates should possess.

3 Graduate employability from a policy perspective

In the previous section, we considered employers' perspectives. There can be little doubt of the substantial influence of this body on the graduate employability agenda; few policy decisions are taken outside the context of industry input. Indeed, recommendations from the so-called 'Dearing Report' (1997), widely recognised as a major catalyst of the graduate employability agenda in the UK HE sector, were built on input from business and industry stakeholders. The current section of this review focuses on exploring the policy dimension surrounding graduate employability. Of which, it is widely acknowledged is a dynamic inter-related relationship between the demands of the job market, HE sector, and the regulation of graduate work (see Tomlinson, 2012). It is increasingly clear that policy matters are also shaped by international perspectives. Below, we (i) outline the wider economic and international influences on the discussion and conceptualisation of graduate employability, (ii) explore the development of the graduate employability agenda through governmental policy reforms within the UK, and (iii) consider some specific examples of the application of employability policy in practice within the UK HE sector.

3.1 Economic and international context

The issue of graduate employability is one that has dominated international and domestic policy discussion for at least 20 years. Early intergovernmental co-operation aimed at developing stable economic growth and raising standards of living argued that 'human capital' was a key asset for reducing social inequalities and promoting healthy economic growth (OECD, 1998). This approach advocated a conceptualisation

of human capital that extended traditional definitions based on educational attainment level and post-education earnings. These definitions often neglected the fact that learning is dynamic, experiential, often informal, and life-long. Instead, OECD (1998) argued for a much broader conceptualisation of human capital comprising “knowledge, skills, competencies and other attributes (…) relevant to economic activity” (ibid, p. 9). A key argument of this approach was the direct measurement of skills, including literacy and other ‘life skills’ as a means of exploring the economic value of human capital. Life skills in this sense incorporating teamwork, problem solving, IT, and motivations/aptitudes. Much of the current dominant thinking around graduate employability is built around the concepts of this early framework of human capital.

The issue of graduate employability as a concept and policy objective has gained significant traction within the last decade, and a number of international, economic, and political issues lie at the heart of the drive towards the development of a skilled and knowledge-rich workforce. At a global level, rapid and deep societal changes have and continue to take place. Large-scale economic disruptions, the global climate crisis, technological advances, and geopolitical factors including migration, conflict, terrorism, and resource crises are amongst the severest pressures being felt by societies (World Economic Forum, 2017). The financial crisis of 2007-08, known as the ‘Great Recession’, is widely accepted as a turning point in global economic fortunes that has left a legacy of austerity conditions and continued depressive job market pressures (Barnichon et al., 2018).

Sitting within this context is a specific concern that young people are already unemployed at far higher rates than other adult workers; reportedly, at least three times the rate of adults according to the International Labour Organization (ILO, 2017). Unemployment rates in January 2020 of those aged under 25 in EU27 countries range

between 5-36% (Statista, 2020). Two additional spheres of economic concern that will continue to exert pressure on global job markets include the UK's 'Brexit' decision to leave the European Union trading bloc and related free trade agreements as well as recent COVID-19 pandemic which has resulted in widespread COVID 'lockdown laws'. The long-term economic consequences of these events are still to be fully realised, but with a predicted 7% economic contraction across developed economies in 2020 alone, the 'Great Lockdown' recession is on track to be the deepest global economic recession since World War II (International Monetary Fund, 2020; The World Bank, 2020). The Resolution Foundation (2020) has predicted that an additional 640,000 young people in the UK alone could face unemployment on leaving education this year, and the UK is set to be one of the worst affected economies with a record 20.4% slump in GDP in April alone this year (Office for National Statistics, 2020). This gloomy outlook on youth economic opportunities has long been endemic in concerns throughout majority and minority worlds, prompting the ILO to develop a global initiative for action - Decent Jobs for Youth, a global programme specifically designed to increase youth access to decent, sustainable jobs and address the significant challenges facing young job market entrants (ILO, 2017).

While the ILO strategy focuses directly on scaling up local, national, regional, and international actions to improve youth access to decent jobs, a comparable example that directly impacts HE can be found in the OECD Learning Framework 2030 (OECD, 2018). Described as a vision for the future of education systems, the framework recognises that economic, social, and environmental challenges require humankind to work towards a sustainable future together, and acknowledges education as a critical component in equipping young people of the skills they need in the job market, but also those they need to become "active, responsible, and engaged

citizens" (p. 4). This framework recognises that the best equipped 'future-ready' students are agents of change and offers the 'learning compass' as an outline for developing the inter-related competencies students and graduates need to engage with the ever-changing, complex world (see Figure 6 below).

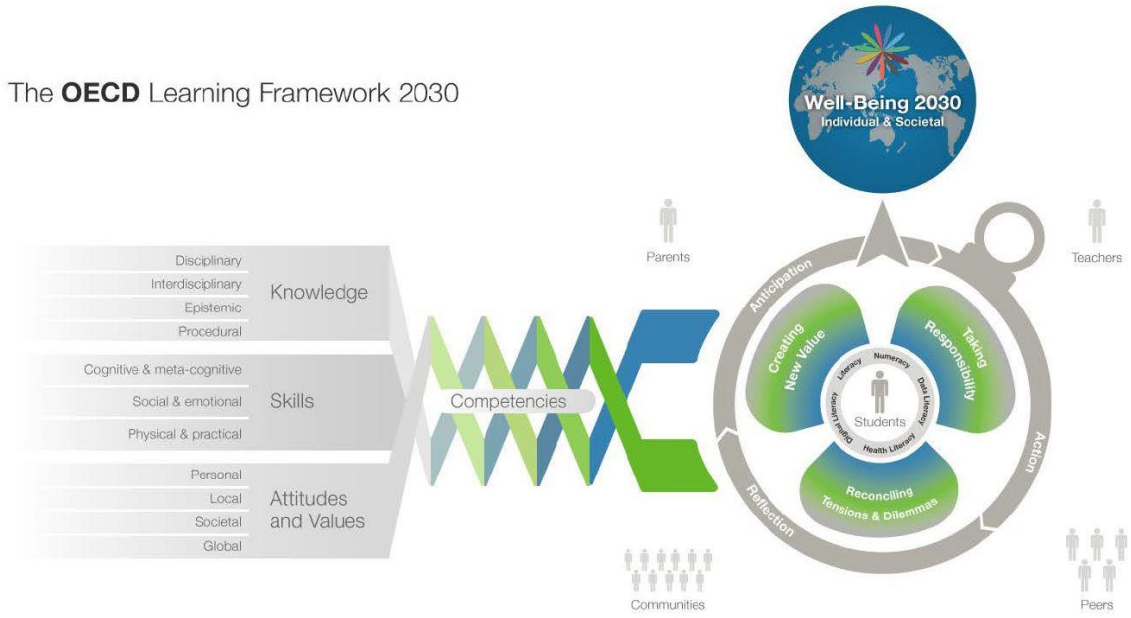

Figure 6: The OECD Learning Framework 2030 (OECD, 2018).

The OECD Learning Framework adopts a traditional 'human capital' approach, in that it recognises knowledge, skills, and learner attitudes and values as critical inputs to the system. The OECD argue that traditional disciplinary knowledge continues to be important, but understanding of how other disciplines work (epistemic knowledge) and how things are done and made (procedural knowledge) are also critical. In terms of skills, the OECD argue that students will require a range of creative and critical thinking skills, but also social and emotional skills (e.g., empathy, self-efficacy, and collaborative working) as well as other practical and physical skills (e.g., technological and digital skills). The framework also advocates, like the human capital approach, that

learner attitudes, such as motivation and values (including respect for human dignity and diversity), help to mediate skills and knowledge use.

The human capital approach finds support in other international thinking. The ILO, for example, include digital skills within the eight thematic priorities for future action (ILO, 2017). Within UNICEF's Global Framework on Transferable Skills (UNICEF, 2019), the inclusion of cognitive, social, and emotional transferable skills in addition to job-specific, digital, and foundational skills are advocated. Within the World Economic Forum's conceptualisation of the future of jobs, critical, innovative, creative, and active thinking; complex problem solving, technological design, and systems thinking; as well as social skills (e.g., emotional intelligence, leadership, and social influence) are anticipated to be in demand (World Economic Forum, 2018). This builds on earlier work from the WEF that emphasises the short life of skills and the need for social and collaborative skills to underpin technical skill sets (World Economic Forum, 2016).

Returning to the OECD Learning Framework, it is important to note that in additional to the traditional 'human capital' approach, the framework also includes competencies (Figure 6). It is argued that competencies include the acquisition of knowledge, skills, and attitudes and values (KSA), but also represent the ability to translate these into action to meet the complex demands of the global world. Furthermore, building on the work of the OECD Key Competencies (DeSeCo) project (OECD, 2005), a further three competencies, known as the transformative competencies, are identified. These are the ability to create new value through innovative creation (including skills like adaptability, curiosity, open-mindedness); the ability to reconcile tensions and dilemmas (requiring integrated, systems thinking); and finally, taking responsibility, a prerequisite of the first two competencies. Self-

regulation, self-efficacy, reflection, and problem solving are key components of this third transformative competency. These constructs, in tandem with traditional KSA inputs, and processes of reflection, anticipation, and action will support the development of competencies that ensure active, engaged, future-ready students (OECD, 2018).

Like many other employability frameworks, the OECD frameworks encourages the development of supply-side factors, but also emphasises the broader contribution education can make towards the development of a sustainable, healthy future as enshrined within the UN Sustainable Development Goals (United Nations, 2015). In the context of the global environmental, social, and economic challenges noted earlier, this framework is a highly influential international contribution to the conceptualisation of graduate employability.

3.2 Public policy context in the UK

The previous section considered graduate employability in the international economic context. It is no surprise that global markets have strongly influenced approaches towards graduate employability and HE policy. The following section specifically considers the public policy context in the UK. It is beyond the scope of this short review to provide a systematic exploration of the policy literature. Instead, we provide an overview of the main influences on policies relating to graduate employability. These have mainly come from reviews of HE, including the so-called Robbins (1963) and Dearing (1997) Reports, but also from discussions emerging from the ‘Skills Agenda’ (e.g. Leitch, 2006). We also consider to what extent policy discussions inform the conceptualisation of graduate employability.

Arguably, the UK graduate employability agenda is emergent from policy discussions that seek to find solutions to the question of who should pay for HE. Following the rapid expansion of student numbers from the late 80's through the 90's and the associated 'crisis' in public spending on HE, the Dearing Report (1997) set forward recommendations advocating (i) increased government spending, (ii) further expansion of student numbers, (iii) greater emphasis on quality in HE, and (iv) the introduction of a graduate contribution to tuition fees (Lunt, 2008).

Although Dearing was commissioned by the Conservative government, it was that the incoming Labour administration that were tasked with the response. Despite committing to the maintaining of Conservatives' funding plans in the short-term, the Labour administration, under Blair, immediately introduced annual student fees of £1,000 - beginning 1998/99, paid upfront, and with limited exemptions for less affluent students. Labour then abolished the student grant system and introduced a comprehensive replacement loan system in 1999/2000 (Shattock, 1999). Both decisions served to place more of the financial burden of HE on students and their families, rather than the public purse.

The drive to reduce public spending on HE has not lessened in the years since the Dearing Report; however, the recognition that global competition demands a highly qualified, knowledge-rich, skilled labour force means that someone must. In the UK, policy discussions argued that more of this responsibility should fall on the shoulder of individuals - that is, those who will directly benefit from the education. Following the Higher Education Act in 2004, English and Welsh Universities were permitted to set variable fee levels for undergraduate courses up to a maximum of £3000. Despite protests, the cap was further raised to £9,000 in 2012-13 following the Browne Review (2010), and it currently sits at a maximum of £9,250 per year (https://gov.uk).

International students can expect to pay annual fees up to £18,000 (UKCISA, 2020). These policy choices reflect a funding model that acknowledges that investment in HE is needed, that students should 'pay more to get more', and that it is the job of HE Institutions "to convince students of the benefits of investing more" (Browne, 2010, p. 25). The Augar Report (2019) advocated a reduction of this financial burden (a maximum of £7,500 per year), but it is unclear if, or how, this recommendation will be implemented.

As more of the responsibility of funding HE has fallen to the shoulders of students, this 'commodification' of knowledge and view of "students as consumers", combined with employers' expectations of work-ready graduates, leads students to expect not only an education, but also a career pathway (Frankham, 2017; Oliver, 2015). This expectation of 'value for money', alongside the broader skills agenda, places much pressure on HE institutions to deliver employable graduates (Tomlinson & Nghia, 2020). Indeed, this responsibility has been formalised within the Teaching Excellence Framework (TEF), where a key metric allowing English HE institutions to charge the maximum level of tuition fees is their ability to produce successful graduates who go onto secure high-quality employment or advanced study (https://gov.uk). Other metrics conceptualising employability as the graduate's ability to get a graduate-level job include the statutory Graduate Outcomes Survey run by the Higher Education Statistics Agency (HESA, 2020), and more informally via measures such as the "Global University Employability Ranking" (Times Higher Education, 2019) or the "Graduate Employability Rankings" (Quacquarelli Symonds, 2020).

This conceptualisation of employability as a supply-side concern is a common strand within the UK education policy. While debates exist as to the suitability of this metric as an appropriate measure of graduate employability (see Tomlinson & Nghia,

2020), measures of post-graduation occupational success and salary outcomes have become the core features of UK universities' marketing strategies (Chadha & Toner, 2017) as they compete to attract students – in particular, highly attractive, fee-paying international students through which a substantial plank of the current funding model is based on. Funding, however, is not the only driver of public policy. Even in Scotland, where, in practice, all undergraduate degrees are funded by the Scottish Government, institutions still have the same focus on graduate employability.

Government reviews provide some valuable insight into the conceptualisation of graduate employability from a policy perspective. Dearing (1997) specified noted 'key skills' to include communication, numeracy, learning how to learn as well as cognitive and subject-specific skills, citing critical analysis and laboratory skills as two such examples (Dearing, 1997). Leitch (2006) broadly agreed but added literacy and teamwork, with a caveat that skills must be 'demand-led' and 'economically valuable' – an opinion echoed by Browne (2010).

A more comprehensive conceptualisation of employability, as it may apply to graduates, comes from the UK Commission for Employment and Skills - a non-departmental public body created in the wake of Dearing. Defining employability as a "set of basic/generic skills and attitudinal/behavioural characteristics" believed to help graduates "secure and sustain employment, and (…) progress in the workplace." (UKCES, 2010, p. 3). UKCES suggest that although there is limited agreement on what employability skills, in practice, most definitions are similar. Drawing on the most used ones, UKCES (2009) define employability to include a "foundation of positive approach" (being willing to participate and take responsibility), "functional skills" (use of numbers, language, and IT) and "personal skills". These qualities include punctuality and time-management skills; the ability to analyse and prioritize situations, and

cooperate and interact clearly; and the ability to contribute to the organisation (see Figure 7 below).

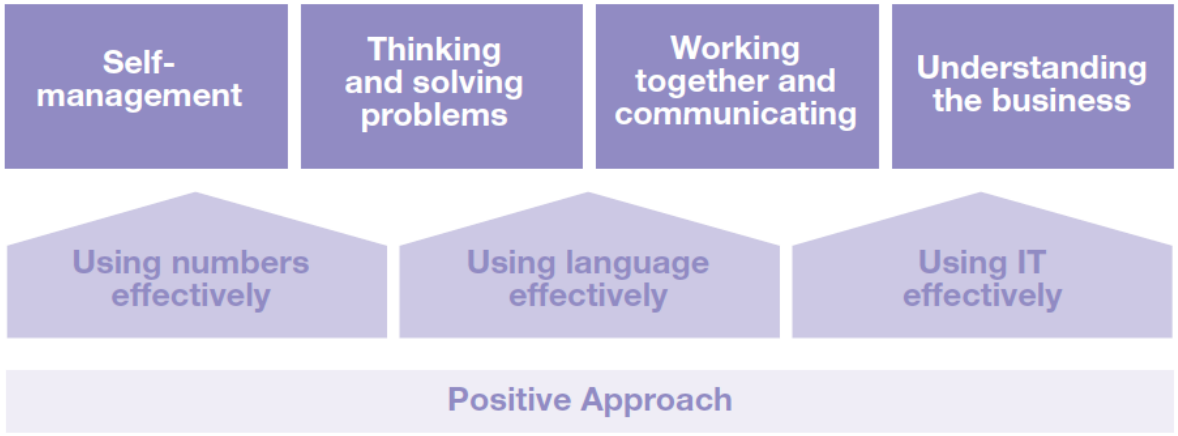

Figure 7: UKCES Employability Skills Framework (UKCES, 2009).

UKCES (2010) also suggest that universities should help students develop attitudes and communication skills to enable them to work effectively with colleagues and clients, but acknowledge that this view refers to a minority of graduates who may not be work-ready according to employers. A key undercurrent linking all these policy-based views on what employability skills are is that employers' voices have contributed to the conceptualisation.

3.3 HE context

Industry and employers expect students to be work-read, while students expect their institutions to offer opportunities to gain the qualities that render them employable. Domestic and international political and economic issues place pressure on institutions to provide employability opportunities as part of the drive for quality, economic

success, and ‘value for money’ from the public purse. The third section of this exploration of policy issues will consider some specific examples of graduate employability in practice within the UK HE sector. Examples will be drawn from sectoral bodies - Advance HE and HE institutions. The previous subsection explored some of the legislative and policy-based pressures on HE institutions to act on employability matters, whereas this subsection specifically considers examples of how the UK HE sector have conceptualised graduate employability.

A recent description of graduate employability in HE comes from Tibby and Norton (2020), writing on behalf of Advance HE. Recognising the lifelong nature of employability, Tibby and Norton advocate a framework for stakeholders to embed employability within the curriculum and culture of HE (see Figure 8 below). The inner circle comprises ten areas most relevant to the conceptualisation of employability, and is encircled by a four-stage process designed to refine institutions’ approach to embedding employability. The outer circle reflects the three principles underpinning the application of the framework in practice.

The framework reflects the conventional human capital approach by focusing on the personal characteristics and qualities held by the graduate. Supply-side factors include the knowledge, skills, and attitudes and values of the learner (KSA), but also recognise that the behaviours, experiences, and (presumably, social and occupational) networks of the individual are important factors in empowering graduates to make successful transitions throughout their careers. In this respect, Tibby and Norton’s model adopts a broader notion of employability that incorporates ‘career capitals’ (or ‘resources’) that can also be found in Tomlinson’s (2017) Graduate Capital Model (see Figure 9 below) and Southampton University’s approach to graduate employability (https://southampton.ac.uk/careers).

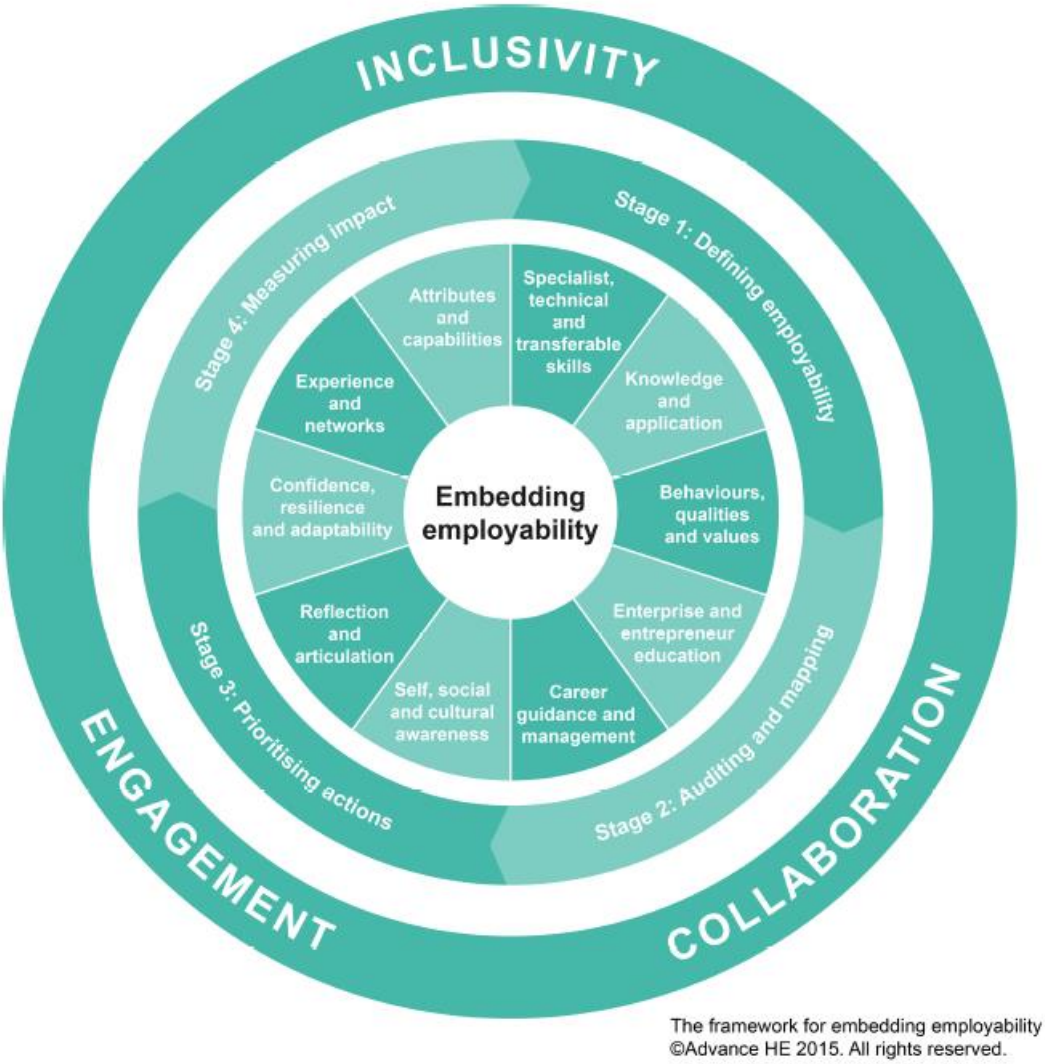

Figure 8: Advance HE framework for embedding employability (https://advance-he.ac.uk) .

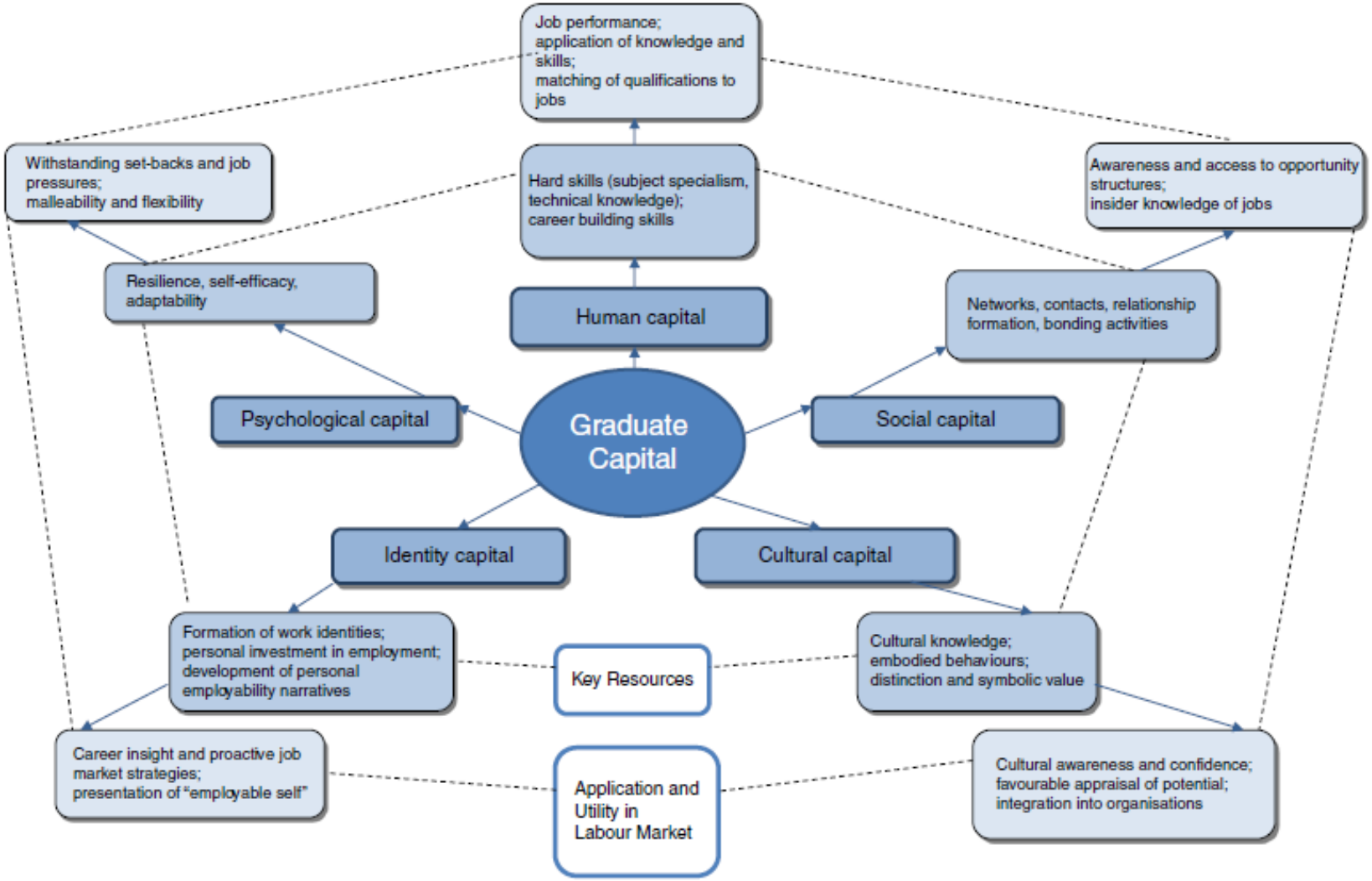

Figure 9: Graduate Capital Model (Tomlinson, 2017).

Tomlinson (2017) proposes five types of career capital - human, social, cultural, identity, and psychological. Human capital is equivalent to the KSA approach and incorporates the general and specific resources that are assumed to add immediate value to student's profiles. Social capital is conceived as a 'socialised' form of KSA, which helps students mobilise their human capital, while cultural capital is the formation of culturally valued knowledge, dispositions and behaviours that help graduates represent themselves to organisations. The extent to which an individual invests in their occupational self-identity and their presentation to the market is referred to as identity capital. Lastly, psychological capital refers to graduates' ability to withstand and adapt to challenging job market conditions or setbacks.

While all five career capitals are incorporated in the Advance HE framework, Tomlinson's model (2017) provides a more comprehensive consideration of the range of factors that graduate employability may comprise. Tomlinson further suggests a range of learning outcomes that represent the articulation of each of the five capitals. Examples include the ability to interpret the job market and search for opportunities, build a network of career contacts, demonstrate sensitivity to different cultural contexts, self-evaluate one's motivations and 'fit' for roles and opportunities, and the ability to construct career contingency plans. In this respect, Tomlinson recognises the traditional 'KSA' human capital approach, but also adopts an explicit perspective that operationalises graduate employability in terms of careers-focused competencies applied to the process of accessing, obtaining, retaining and regaining, if necessary, graduate-level work.

In comparing HE conceptualisations to the international approach (e.g. the OECD Learning Framework 2030), one might debate the extent to which Tomlinson or Tibby and Norton's models accommodate for interdisciplinary or epistemic knowledge. One could also query variations in the conceptualisation of the different skills, attitudes, and values between the two domains. However, both models adopt approaches that recognise the same key inputs as the international perspective does (i.e. the KSA model). Tomlinson's model also operationalises employability very specifically related to performance in the job market, and in this way, closely reflects Hillage and Pollard's (1998) definition of employability as the ability to access a job, maintain it, or find another one. It also closely links to UK policy actions which define and measure employability against job market successes.

Other HE approaches to graduate employability are less explicitly related to policy considerations or international perspectives. For example, the University of Cambridge adopts a narrow definition of employability as key skills comprising four 'essential' skills (intellectual, communication, interpersonal, and organisational) and four 'desirable' ones (computer literacy, research skills numeracy, and foreign language skills). Comparatively, the University of Oxford focuses on eight skills – business awareness, communication, creativity, initiative, leadership, planning, self-management, and teamwork. All of these are based on the CBI's conceptualisation of employability (https://dgtap.co.uk) as a "set of attributes, skills, and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy.". Both Oxford and Cambridge Universities rate highly on public and private

measures of employability, which might suggest that while the definition and scope of graduate employability may matter, how student development is supported within HE institutions may also be critical.

3.4 Summary

All the models considered in this section represent slightly different ways of conceptualising the issue of graduate employability; however, what none of the models do is teach graduates how they can recognise and articulate those factors to employers. Equally, none pay attention to the 'demand-side' structural factors which are of utmost importance in any conversation about employment, nor do they pay attention to students' perspectives on employability, which we turn to in the next section.

4 Graduate employability from a student perspective

Graduate employability is a widely examined topic in contemporary literature in the fields of education, HR, and career counselling (Bhagra & Sharma, 2018; Butum & Nicolescu, 2019; Nisha & Rajasekaran, 2018). The most often studied group of stakeholders are employers, whereas analyses concerning students are relatively scarce (Gedye & Beaumont 2018; Tymon, 2013), even though they are the target group involved in employability development. Students' knowledge of, and attitudes to, employability are indicators of awareness in this group of people during the educational process and of the effectiveness of currently undertaken educational activities. What is more, research on students and alumni enables the monitoring of individuals' development of employability and facilitates addressing any deficiencies while educational interactions are still possible (Hill et al., 2018; Jackson, 2013; Wilton, 2008; Yorke, 2004). Inclusion of students' perspective, both undergraduates and graduates, is therefore important to view the employability issue holistically.

The literature on students' perspectives on employability includes a wide range of research. This topic has been analysed in different countries, fields of study, and at different levels of education. More specifically, research on graduate employability has been conducted in European countries, such as the United Kingdom (Tomlinson, 2008; Tholen, 2014; Yorke, 2004), the Netherlands (Tholen, 2014), and Spain (Vargas et al., 2018), but also in Australia (Brooks & Everett, 2009), Malaysia (Mohamad et al., 2018; Wye & Lim, 2009), Uzbekistan (Peterson, 2007), the United Arab Emirates (Al Shayeb, 2013; Griffin & Coelhoso, 2019), the United States of America (Hodge & Lear,

2011; Yu et al., 2013), and India (Parasuraman & Prasad, 2015). Studies of employability include, but are not limited to, students of accounting (e.g., Atanasovski et al., 2018; Jones & Abraham, 2007; Kavanagh & Drennan, 2008), business (e.g., Hodge & Lear, 2011; Maxwell et al., 2007), marine sports science (Gedye & Beaumont, 2018), engineering (Parasuraman & Prasad, 2015), and IT (Nilsson, 2010). Some studies examined views of current undergraduate students (e.g., Jackson, 2013; Mohamad et al., 2018; Mulrooney, 2017; Wye & Lim, 2009; Yorke, 2004), whereas others focused on graduates (e.g., Jackling & De Lange, 2009; Robinson & Garton, 2008; Teng et al., 2019; Wilton, 2008). Yu et al. (2013) compared students and alumni's perspectives, whilst Gedye and Beaumont (2018) analysed how students' understanding of employability develops as they progress through their degree and become graduates. This variety in research approaches not only highlights the importance of employability as a topic, but also indicates that any generalisation should be made with caution as each example of research in the field is conducted in a specific context.

Below, we consider four aspects of graduates' employability. First, we present how students understand and define employability. Second, on the basis of a literature review, we show which generic skills and attributes are considered the most important by students. Third, we review different avenues for developing GES within HE. The fourth part incorporates students' subjective assessment of their GES.

4.1 Conceptualisations of employability

Access to HE is relatively easy nowadays. A degree certificate in itself is not a distinguishing feature in the job market, and it does not guarantee employment (Divan & McBurney, 2016). According to the UK Office for National Statistics (2017), 47% of graduates who left full-time education within five years work in non-graduate roles which are associated with tasks that do not normally require knowledge and skills developed through HE. Similar difficulties in the job market occur in Spain, where the unemployment rate among young graduates is high (Vargas et al., 2018). On the other hand, according to research by the Statistical Office in Gdańsk (2017), 12% of young people aged 15–34 who finished university courses in Poland indicated that their education does not help to meet the demands of their current job. The Polish Graduate Tracking System (*pol. Ogólnopolski System Monitorowania Ekonomicznych Losów Absolwentów ELA,* 2017) estimated that students with work experience find employment within one month of graduation, whereas those without any experience tend to find employment within three months. A larger number of graduates in the job market translates into greater competition for employment (Divan & McBurney, 2016; Herbert et al., 2020; Maxwell & Broadbridge, 2017), hence students are aware that they need additional skills in order to stand out, and therefore succeed in finding employment (Paterson, 2017; Tomlinson, 2008; Tymon, 2013).

Students' views on employability change and evolve with the course of their study. In the beginning of their experience with HE, students have a poorer idea of what employability is (Gedye & Beaumont, 2018). They are less engaged in the development of GES, and do not place much importance on grades as, in their opinion,

these do not matter to employers (Tymon, 2013). Students are reluctant to engage in additional activities designed to develop GES (Rothwell et al., 2008). As students' progress through HE, their understanding of graduate employability increases and becomes more sophisticated (Gedye & Beaumont, 2018; Moreau & Leathwood, 2006; Tymon, 2013).

In general, students seem to be aware of the importance of GES - they know that having a university degree is not enough to find employment, and that employers also expect them to demonstrate particular skills and personal/intellectual attributes (Paterson, 2017; Rae, 2007; Tomlinson, 2008; Tymon, 2013). When deliberating over students' perspectives on employability, it is important to note how their perspectives may differ from those of employers and academics (Jackling & De Lange, 2009; Tymon, 2013). Some studies point out, that in comparison to other GES stakeholder groups, students generally demonstrate a limited understanding of employability, lacking an awareness of, for example, potential contributions to society, the economy, and personal work satisfaction (Cranmer, 2006; Gedye & Beaumont, 2018; Maxwell et al., 2007; Tymon, 2013). Students also fail to recognise the importance of generic skills, or whether they possess them (Dunne & Rawlins, 2000; Hodge & Lear, 2011; Robinson & Garton, 2008). Some studies also indicate that undergraduate students are not aware of what employers expect (Cavanagh et al., 2015), and show little interest in developing GES during studies (Rae, 2007).

4.2 Views on in-demand GES

In order to establish which GES are considered the most important by students, we analysed the results of 16 studies conducted in 11 countries, including four European countries (Macedonia, Slovakia, Sweden, and the UK) as well as Australia, Botswana, China, Malaysia, UAE, USA, and Uzbekistan. These studies recruited student participants from different disciplines, with more than half focusing on accounting and business (62.5% of the studies). Other samples consisted of students of agriculture, food, and natural resources (Robinson & Garton, 2008); chemistry (Hill et al., 2018); economics, management, art, and literature (Su & Zhang, 2015); social sciences, humanities, education, business, and science (Pheko & Molefhe, 2017); IT (Nilsson, 2010); and psychology, economics, mass media, informatics, and law (Lisă et al., 2019). The studies used various procedure - interviews, focus groups, questionnaires, or online surveys. In some of them, students were asked to create a list of the most important GES (e.g., Nilsson, 2010; Paterson, 2017), whereas in others, they were asked to assess the importance of each skill from a provided list (e.g., Hodge & Lear, 2011; Jones & Abraham, 2007). Based on the findings from those studies, we identified a list of skills and attributes to which students assigned the most importance. The list is presented in Table 1 below. Only GES considered the most important in at least two studies are included.

Table 1: The most important GES to students.

Skill/attribute	Frequency in total	Frequency in Europe	Sources
Teamwork	12	4	Paterson (2017), Atanasovski et al. (2018), Pheko & Molefhe (2017), Tymon (2013), Kavanagh & Drennan (2008), Jones & Abraham (2007), Maxwell et al. (2007), Hodge & Lear (2011), Griffin & Coelhoso (2019), Hill et al. (2018), Su & Zhang (2015), Lim et al. (2016)
Communication skills	10	6	Paterson (2017), Atanasovski et al. (2018), Pheko & Molefhe (2017), Tymon (2013), Kavanagh & Drennan (2008), Maxwell et al. (2007), Lisă et al. (2019), Griffin & Coelhoso (2019), Hill et al. (2018), Nilsson (2010)
Time management	9	2	Paterson (2017), Atanasovski et al. (2018), Pheko & Molefhe (2017), Jones & Abraham (2007), Hodge & Lear (2011), Robinson & Garton (2008), Griffin & Coelhoso (2019), Hill et al. (2018), Lim et al. (2016)
Problem solving	8	2	Atanasovski et al. (2018), Pheko & Molefhe (2017), Kavanagh & Drennan (2008), Hodge & Lear (2011), Robinson & Garton (2008), Lisă et al. (2019), Su & Zhang (2015), Lim et al. (2016)
Critical thinking	5	0	Paterson (2017), Kavanagh & Drennan (2008), Jones & Abraham (2007), Hodge & Lear (2011), Lim et al. (2016)
Work ethic	5	1	Pheko & Molefhe (2017), Kavanagh & Drennan (2008), Jones & Abraham (2007), Maxwell et al. (2007), Su & Zhang (2015)
Commitment/enthusiasm	4	2	Pheko & Molefhe (2017), Tymon (2013), Robinson & Garton (2008), Nilsson (2010)
Interpersonal skills	4	2	Maxwell et al. (2007), Hodge & Lear (2011), Robinson & Garton (2008), Nilsson (2010)
Leadership skills	4	2	Paterson (2017), Atanasovski et al. (2018), Pheko & Molefhe (2017), Nilsson (2010)
Self-motivation	4	1	Pheko & Molefhe (2017), Kavanagh & Drennan (2008), Jones & Abraham (2007), Nilsson (2010)
Work experience	4	1	Paterson (2017), Pheko & Molefhe (2017), Tymon (2013), Jones & Abraham (2007), Su & Zhang (2015)
Analytical skills	3	0	Kavanagh & Drennan (2008), Jones & Abraham (2007), Lim et al. (2016)
Confidence	3	1	Pheko & Molefhe (2017), Jones & Abraham (2007), Maxwell et al. (2007)
Continuous learning, ability to learn	3	1	Kavanagh & Drennan (2008), Jones & Abraham (2007), Lisă et al. (2019)
Coping with stress	3	1	Robinson & Garton (2008), Lisă et al. (2019), Lim et al. (2016)
Decision making	3	1	Atanasovski et al. (2018), Kavanagh & Drennan (2008), Lim et al. (2016)
Independence at work	3	2	Maxwell et al. (2007), Robinson & Garton (2008), Lisă et al. (2019)
IT skills	3	1	Pheko & Molefhe (2017), Tymon (2013), Kavanagh & Drennan (2008)

Presentation skills	3	1	Paterson (2017), Atanasovski et al. (2018), Pheko & Molefhe (2017)
Organisation skills	3	2	Tymon (2013), Jones & Abraham (2007), Hill et al. (2018)
Self-esteem/self-belief	3	1	Pheko & Molefhe (2017), Jones & Abraham (2007), Nilsson (2010)
Assertiveness	2	0	Paterson (2017), Pheko & Molefhe (2017)
Business awareness	2	1	Pheko & Molefhe (2017), Maxwell et al. (2007)
Credibility	2	1	Atanasovski et al. (2018), Pheko & Molefhe (2017)
Cultural awareness	2	2	Maxwell et al. (2007), Nilsson (2010)
Flexibility	2	1	Tymon (2013), Kavanagh & Drennan (2008)
Hard work	2	1	Pheko & Molefhe (2017), Tymon (2013)
Research skills	2	0	Paterson (2017), Pheko & Molefhe (2017)
Respect	2	0	Pheko & Molefhe (2017), Kavanagh & Drennan (2008)

As can be seen in Table 1, four skills are highlighted as being important in the majority of the studies: teamwork, communication skills, time management, and problem solving. These were considered the most important by students from different countries and disciplines. Interestingly, critical thinking was frequently mentioned only outside Europe. Other skills and attributes such as work ethic, commitment/enthusiasm, interpersonal skills, leadership skills, self-motivation, and work experience were mentioned in a quarter of the analysed studies, indicating moderate agreement as to their importance in finding and maintaining employment among international students. Critically, students considered generic skills as more relevant than technical skills (Atanasovski et al., 2018; Nilsson, 2010; Paterson, 2017; Tymon, 2013) and realised the importance of work experience (Jones & Abraham, 2007; Paterson, 2017; Pheko & Molefhe, 2017; Tymon, 2013).

4.3 GES acquisition during studies

Students' views on the contribution of HE institutions in supporting their GES acquisition seem to be mixed. Some studies indicate that from the students' perspective, universities do not adequately help to develop GES as part of their curricula (Atanasovski et al., 2018; Cranmer, 2006; Kavanagh & Drennan, 2008; Thirunavukarasu et al., 2020; Webb & Chaffer, 2016), whereas other studies show that students think that universities do support the development of their GES (Divan & McBurney, 2016; Griffin & Coelhoso, 2019; Maxwell et al., 2007; Parasuraman & Prasad, 2015; Teng et. al, 2019; Tymon, 2013; Wilton, 2008). Students' views on this issue are clearly far from consistent. This could be because some students do not seek or benefit from the opportunities to gain GES during their studies (Divan & McBurney, 2016; Paterson, 2017; Tymon, 2013), underestimate the importance of classes, or do not see how they translate into the development of GES (Paterson, 2017; Yorke, 2004), and therefore have difficulties in articulating these GES when asked. This is line with recent findings by Griffin and Coelhoso (2019) that students prioritise GES gained in a practical employment context and value them more than GES gained in an academic context. Students consider work experience so valuable that they put a high premium on internships and placements (Griffin & Coelhoso, 2019; Lowden et al., 2011; Mahmood et al., 2014; Shoenfelt et al., 2013; Thirunavukarasu et al., 2020; Tymon, 2013; Yu et al., 2013) as well as extra-curricular activities such as volunteering and joining societies (Brooks & Everett, 2009; Divan & McBurney, 2016; Lowden et al., 2011; Morgan & Jones, 2012; Mulrooney, 2017; Paterson, 2017; Thirunavukarasu et al., 2020; Tomlinson, 2008; Tymon, 2013). It appears, then, that

students may view university as completely distinct from the 'real world' and diminish the perceived value of skills and knowledge acquired during their studies.

Research has also produced mixed results as to how students assess their employability. Some studies show that students are satisfied with their GES (Cavanagh et al., 2015; Robinson & Garton, 2008; Wye & Lim, 2009), whereas others suggest that students overestimate their GES in comparison to academics and employers' assessment (Jackson, 2013; Lisă et al., 2019; Messum et al., 2017). There have also been reports that students feel their generic skills are inadequate (Griffin & Coelhoso, 2019; Jackling & De Lange, 2009; Kavanagh & Drennan, 2008; Yu et al., 2013), or demonstrate a general lack of self-confidence in terms of their employability (Rothwell et al., 2008). Future research will established whether any consensus can be reached, or whether there are inherent differences between students in the self-assessment of their GES, just like with their general perspectives and approaches to employability development.

4.4 Summary

In summary, employability from the student perspective is a very broad and complex issue. Students are generally aware that a university degree is a useful, sometimes required element of their portfolio, but also realise that it is not enough to find a fulfilling job. Their views on the importance of developing GES, and engagement in this process, improve as they progress through their studies. There seems to be agreement among students that generic skills and attributes are more important than

discipline-specific skills, and that teamwork, communication skills, time management, and problem solving are the most important GES they are expected to acquire and later evidence. While recognising abstractly the importance of GES, many students do not seem to place value on skills acquired as part of their required studies, instead attaching inflated importance to those acquired outside class, whether via extra-curricular activities, or during work experience. However, the literature also indicates a number of individual differences in students' perspectives and approaches to employability. In particular, students' self-confidence in terms of employability decreases throughout the course of their studies as they become more and more aware of how the job market works (Gedye & Beaumont, 2018; Hodges & Burchell, 2003). The sense of employability tends to be greater among graduates of high-ranking universities (Rothwell et al., 2008) and lower among those from socioeconomically disadvantaged backgrounds (Vargas et al., 2018). This shows that the number and level of GES students possess, and their general attitude to employability, may strongly depend on the type of HE institution, undertaken course, and the individual. Finally, students' perceptions of their own GES are often inaccurate, with the majority either over- or under-estimating their own skill level upon completion of their studies.

5 Conclusions and recommendations for the GES App

Graduate employability is an exceptionally complex issue that needs to be considered from the HE, employer, policy, and student perspectives. A number of frameworks of employability skills have been put forward, though most have been rather reductionist and vague. One particularly comprehensive framework that may be useful to the GES App is the OECD Learning Framework 2030 (OECD, 2018). It recognises that although the definitions and labels for these may differ within the literature, in practice, graduate employability is underpinned by knowledge, skills, and attitudes and values (see Figure 6, p. 38). Within the framework, the knowledge component includes discipline-/sector-specific, interdisciplinary, epistemic (knowing how to think and act in practice), and procedural knowledge (knowing how to learn and perform tasks). The skills component includes cognitive and metacognitive, social and emotional, and physical and practical skills. The last component includes personal, local, societal, and global attitudes and values.

The views exemplified in the OECD framework are compatible with several findings of our literature review. To begin with, a number of studies have shown that employers often complain about graduates' work-readiness and the level and extent of their skills (e.g., Humburg et al., 2015; Jackling & de Lange, 2009), suggesting that epistemic knowledge, practical/workplace skills (e.g., organisation, leadership, and planning), and the ability to apply skills in non-academic settings in general may be indeed key factors in graduate employability. Furthermore, the OECD framework highlights the role of interdisciplinary knowledge and consideration of learning in the

local, societal, and global context, mirroring the graduate attributes agenda of the HE sector reviewed in the first section. Last but not least, the OECD framework indicates that in order to find employment, graduates must acquire and evidence a wide array of skills and attributes/attitudes. This is in line with demonstrations that generic skills are more important to employers and graduates than technical, discipline-specific skills (e.g., Gammie et al., 2002; Raybould & Sheedy, 2005; Tomlinson, 2008), and that employers seek graduates with a myriad of different skills and attributes who can 'hit the ground running' when joining their business (e.g., Andrews & Higson, 2008; Harvey, 2000; Stewart & Knowles, 2000).

The OECD Learning Framework 2030 may prove useful in informing the GES App because it also recognises the importance of competences. Consistent with theoretical work (e.g., Frezza et al., 2018; Kennedy et al., 2009; Petersen & Heikura, 2010), the framework characterises competences as the 'end product' of learning, or evidence of the ability to translate knowledge, skills, and attitudes and values into action. It advocates that competences should be collectively viewed as a learning achievement from the perspectives of the graduate, employer/teacher, and society/ community (for a similar view, see Petersen & Heikura, 2010). The implications of such a conceptualisation are two-fold. First, knowledge, skills, or attitudes cannot guarantee employability on their own; rather, it is the combination of the three. Second, it does not suffice to possess these; graduates must be able to successfully apply these in the workplace and everyday life, thereby demonstrating competence to themselves and others. Taken together, it appears that the GES App should not only consider users' knowledge, skills, and attitudes/attributes, but also offer means of evaluating

and evidencing these. This is particularly important since students often struggle or do not know how to apply what they have learnt in HE in the 'real world' (e.g., Hurrell, 2016; Martin & Chapman, 2006; Paterson, 2017; Yorke, 2004).

The question of which skills the GES App should focus on is a difficult one, especially given the prevailing view that the more skills a graduate has, the better. Our review of existing employability skills frameworks suggests that the knowledge, skills, and attributes expected of graduates can be divided into six broad categories – communication, teamwork, learning and academic, digital/IT, workplace, and self-management. This is fairly consistent with other findings of the literature review. When asked to list important GES, employers most often cite communication, teamwork, leadership, initiative, and adaptability, whereas students most often cite communication, teamwork, critical thinking, time management, and work ethic. Note that although there is some agreement as to what the key GES are, there is also evidence of differences in skills requirements across businesses, disciplines/sectors, and countries (e.g., Archer & Davison, 2008; Bennett, 2002; Succi & Canovi, 2019). It may therefore be important to implement some customisation features within the GES App to allow users to include discipline-/sector-specific knowledge, skills, and attributes over and above the generic, wide-reaching ones.

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