Graduate Attributes and Generic Skills in Remote Teaching

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Graduate attributes are what are known as the skills, knowledge and potential of graduates, applicable to a range of contexts and disciplines. They are an intended set of qualities perceived by some university students to be one of the fundamental outcomes displayed at the point of graduation.

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1. Graduate Attributes

Graduate attributes are what are known as the skills, knowledge and potential of graduates, applicable to a range of contexts and disciplines. It is an intended quality perceived by some university students as one of the fundamental outcomes to be displayed at the point of graduation. These outcomes are developed regardless of the domain or discipline of knowledge intended. This does not imply that they are necessarily independent of disciplinary knowledge, but rather that they are the key abilities imbued in a graduate in recognition that they are not simply bound to the knowledge, skills and attitudes of their subscribed discipline. These outcomes are the repercussion of the habitual standards established in higher education, hence do not necessarily require the formulation of a system to embed the attributes into one’s curriculum. Rather, they are expected to be developed from and intimately linked to the contemporary higher education experience [1].

Developing graduate attributes is a lifelong learning process. From adaptability to the acceptability of graduate attributes when put into practice in a professional capacity, the learning of the attributes in itself does not seem to cease. The core sets of attributes that are considered graduate capabilities vary remarkably over time, apart from a visible rise in those of technological skills. The ‘USEM’ model posited by [2] visualises the concept of graduate attributes in the context of employability (**Figure 1**). This demonstrates the interpersonal skills that have to be developed within oneself to be found favourable in the eyes of recruiters, such as that derived from ‘E’, which stands for the persuasive importance of a belief in efficacy. The study also tabulated data (refer to **Table 1**), which was foreseen as a favourable feature when recruiting fresh graduates as opposed to their more senior colleagues. Universities have come to accept their capability to represent an output from university education for knowledge workers, professionals and citizens.

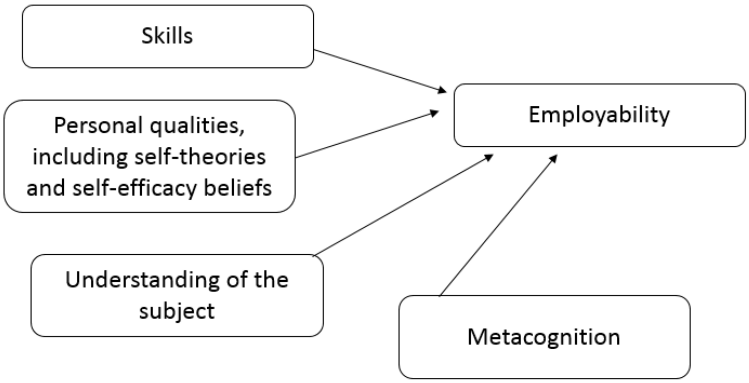

Figure 1. Simplified schematic representation and reproduction of the USEM model of employability with inter-relationships having been removed to highlight contributions that each make to employability. Adapted from [2].

Table 1. Main features of employability as reported by recently recruited graduates and their more senior colleagues [2].

Recently Recruited Graduates	More Senior Colleagues
• Personal qualities	• Personal characteristics
• Communication skills	• Communication skills
• Degree experience	• Quality of, and performance in, education
• Work experience	• Work experience

Graduate attributes are now identified as one of the critical outcomes of the modern world's tertiary education provision. Conceived from the notions of the diverse and swiftly altering obligations of the modernised workplace of the 21st century is the need for graduates to correlate and to be able to demonstrate their knowledge, skills and abilities beyond acquisition and retention of knowledge. The implication for universities to deliver the promise of a future-oriented education system and the progression of minds which "synthesize knowledge" and broaden their horizon for "new and unfamiliar ways" is now more critical than it has ever been before, as education sectors globally have had to brace themselves for a period of consequential reform resulting from the pandemic [3].

In organisations the world over to which graduates are destined, the assignment of tasks is typically rationalised within project teams. In so doing, the assemblage of knowledge is sought to be interdisciplinary, rather than being a product of mono-disciplinary activities. Thus, employers seek graduates who communicate well and have developed to be better team workers, proficient in interpersonal behaviour. The communication skills acquired are not limited to written correspondence, but include verbal engagement with colleagues and clients to persuade and network within and beyond the organisation. Interpersonal skills are in a large part built on emotional intelligence, which includes acknowledging and analysing ideology and concerns from others' points of view, understanding how to interact effectively in numerous settings and being tactful and forceful when required [4].

Worldwide over the last three decades, sustainable development in higher education has come to be an inevitable issue of discussion. 'Agenda 21' [5] is a comprehensive non-binding action plan

devised by the United Nations towards achieving sustainable development. The initial aim of the initiative was to achieve global sustainable development by the 21st century: “Since Agenda 21 and the United Nations’ Decade for Education for Sustainable Development published, higher education institutions have been recognised as playing a critical role in shifting our society’s awareness toward sustainable development. Due to the unique role they play in society, universities have a responsibility to educate the next generation toward a sustainable future” [6]. “As recognized in Agenda 21 and related international declarations and initiatives directed to higher education, universities have the potential to contribute to the social, environmental, and economic sustainability of communities” [7]. These macro-level influences shape the world in which education and employment develop whilst demanding that graduates have the capabilities to contribute to sustainable development.

2. Generic Skills of Graduates

Generic graduate attributes are the “skills, personal attributes and values which should be acquired by all graduates regardless of their discipline and represents the central achievements of higher education as a process. Such qualities include critical thinking, intellectual curiosity, problem-solving, logical and independent thought, communication and information management skills, intellectual rigour, creativity and imagination, ethical practice, integrity and tolerance” [8]. These qualities are also considered a means to prepare graduates as representatives of social good in an environment of considerable uncertainty, caused by the ongoing effects of the COVID-19 pandemic.

“An environment of radical uncertainty and complexity both brings about changes in human beings and calls for changes. The changes are at once substantive new knowledge, new adaptations and new skills” [8]. An increase in student intake and the corresponding effect it has had on teaching practices, the casualisation of academic staff and recognition and honour of good teaching skills are all viewed as challenging tasks together with current environmental and institutional factors. The increased focus on graduate skills in higher education stems from global trends of expanding vocationalism, mass education and marketisation [9], as well as the resulting increase in rivalry or competition amongst universities around the world. External stakeholders such as government and business are concerned about acceptable employability and professional results for graduates as universities take on a more vocational role [9].

The world continues to change in numerous ways, from the impacts of climate change to economic and political uncertainty and global health crises. As change becomes the only constant, technologies, systems, institutions, languages and social practices are changing together with ever-increasing rapidity. Hence, it is safe to assume that the fundamental educational problem faced in an ever-changing world is neither one of knowledge nor of skills, but is the one of being. To elucidate, “the educational challenge of a world of uncertainty is ontological in its nature” [10]. Therefore, it is of utmost importance that tertiary education needs to be subjected to a fundamental shift, so as not to abandon the apprehensions involving either knowledge or skills but to place at its core a new concern with being as such [11]. Thus, the role of adopting, developing and coalescing attributes for graduates to deal with unprecedented change becomes more relevant.

As the importance of developing generic attributes in higher education grows, institutions are emphasising which generic skills their graduates achieve as part of their mission and objectives, and educators are being required to document how their courses and programmes support the development of those skills and attributes. The mapping of chances for graduate attribute development in the planned curriculum thus plays a significant role in quality assurance and reporting processes, and embedding these opportunities in curricula may ensure that the espoused curriculum and the edified curriculum are in sync [8]. A recent UK-based study reveals

that the most commonly cited graduate attributes from universities can be categorised into the following four areas: self-awareness and lifelong learning; employability and professional development; global citizenship and engagement; and academic and research literacy [12].

Professional work experiences recorded from recent graduates in Australia identified that communication, time management, teamwork, working with people, working across cultures, project management and business skills were some of the major professional skills required for their professional work [13]. A discussion from this research and its subsequent findings raised questions about the adequacy of the graduate attributes approach in the development of professional skills, such as the ability to work across cultures and on multiple projects, which are major requirements of graduates in many workplaces. Graduate attributes which help to prepare individuals for work therefore require input from a wide range of employers to assist in shaping and defining them.

Top-down embedding of graduate attributes has the potential to be met with limited success. Taking a bottom-up approach offers an opportunity to improve the understanding of which graduate attributes actually constitute the outcomes of universities. The experiences of research students in three peer support groups, using the results of an exploratory opinion survey that required sharing their learning experiences about the development of graduate attributes, were collected. Participants favoured five attributes based on their past and present experience: communication; critical thinking; self-motivation; research organisation; and teamwork. Viewing the development of graduate attributes through the lens of the students improves the understanding of how peer support groups help to develop graduate attributes and contribute to university efforts to inculcate these attributes by taking into account experiential learning [14].

Graduate employability has expanded in recent years to encompass a multitude of abilities, traits and other factors. Work-integrated learning is seen as a critical technique for encouraging graduate employability, via experiential learning and reflection [15]. Work-integrated learning experiences should be included in the curriculum and supported by suitable pedagogical tools, as well as by providing quality assessments to enhance employability outcomes. While necessary, such assistance has resourcing consequences for higher education, including effects on staff workload that must be considered. Employability has been examined in relation to the construct of job outcomes, pointing to ways in which these two viewpoints can be better integrated [16].

Commentators often make a strong case for the contextualisation of skills [17] and that the ability to contextualise is as important as the skills themselves [18]. Learning for a future context has been thoroughly analysed and approaches recommended [19] that include the idea that university education should prepare students for an unknown future and to deal with situations that are new or are yet to be experienced. The researchers propose that an effective way of achieving this is to use their different ways of seeing an approach and cite the need for variation in experiences as an effective way of learning and, by extension, preparing students for their future [19]. This dovetails neatly with the previous commentary on an ever-changing world.

The most ubiquitous method of instilling graduate qualities is to include them in the curriculum of a bachelor’s degree programme. Due to the additional responsibility and leadership involved in mentorship within the working environment, mentors for the peer-assisted study sessions (PASS) programme at a research-intensive university in New Zealand reported developing a range of graduate attributes, such as communication, critical thinking and ethical responsibility. Co-curricular programs like PASS can provide students with additional opportunities to acquire and enhance graduate-level skills. While not all students will be able to be mentors on programmes such as PASS, the data can be used to guide other initiatives aimed at developing graduate characteristics. If these programmes provide students with genuine responsibilities, they may be more effective at developing graduate characteristics [20].

A variety of university programmes employ small-group dialogue within collaborative learning to improve students' learning outcomes and cultivate graduate qualities. Students in small groups work with others in a peer-to-peer learning style, taking responsibility for their own learning and expanding their comprehension of the subject. Blended learning, which combines traditional face-to-face classroom approaches with online instruction, is one solution which has seen unparalleled growth and widespread adoption since the onset of the COVID-19 pandemic. The goal of one piece of research [21] was to test a novel blended learning approach that involved customising peer-to-peer learning through classroom discussion and an online discussion board. A survey was completed at the end of the course to assess this method; the majority of students reported that this approach helped improve their communication skills and connect with other classmates [21]. Such evidence goes some way to advocating blended models for graduate attribute development in the future.

Employers, the community and graduates all share some (often differing) expectations of what graduates will be able to demonstrate in terms of competence and capability. Some universities have responded by compiling a list of desirable graduate characteristics that must be incorporated throughout all programmes. Over the last decade, a number of universities have found that focusing on teaching and assessing graduate attributes has proven to be a huge problem, as academic staff found adjusting their assessment processes to be one of the most difficult tasks they face. As a result, assessing graduate qualities proves to be a good indicator for identifying key issues at hand, and it identifies and acknowledges the role that academic staff beliefs about graduate attributes play in their approach to teaching and assessing; it considers the impact of these beliefs on staff engagement in an informed and pedagogically sophisticated way in assessing graduate attributes. Only by engaging thoroughly in this task can the custodians of the curriculum, especially academic staff, ensure that their students are engaged in developing the traits they need to be who they want to be [22].

The COVID-19 pandemic has had an unprecedented impact on higher education, learning, teaching and assessment, which directly and indirectly impacts on the general skills development of graduates. For example, remote teaching and learning have been limiting opportunities for student interaction, particularly causing significant disruption to practical activities (such as laboratory-based exercises, field visits, etc.) and group-related activities (such as group projects) [23][24]. Conversely, remote and blended teaching and learning have enabled opportunities for students to develop new digital skills that were not traditionally required in face-to-face modes [25][26].

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