The Role of Graduate Attributes in Higher Education. A Review of the Issues Associated with Graduate Attributes and the case for their Measurement

Dominic Mahon[1]

Abstract

This literature review considers the role graduate attributes have to play in contemporary higher education (HE). Considering academic literature and reports from government and industry, it argues that there is currently a crisis in HE whereby the financial benefits of having a degree are overwhelmed by the financial burden of obtaining one. This crisis has its roots in the growing trend to perceive the value of HE as the means to the end of employment rather than as an end in itself.

Graduate attributes (the skills and competencies students are supposed to acquire over the course of their studies) have the potential to promote HE as an end in itself. However, in their current form they typically do not have strong theoretical foundations and are too heavily subject to the influence of industry. Furthermore, despite explicit claims that graduates display these characteristics, institutions do not normally measure the attainment of graduate attributes. For graduate attributes to become more useful and relevant, these issues need to be resolved.

Keywords Graduate attributes · Student development · Higher education crisis · Purpose of higher education

Introduction

In 2013, the Barber report warned of a coming avalanche facing Higher Education (HE) internationally. The major problem highlighted in that report was that the value of a degree was being called into question (Barber, Donnelly, Rizvi, & Puttnam, 2013). In May 2019, the Augar report seemingly confirmed that prediction, observ-

✉ Dominic Mahon Ph.D
dominicmahon@gmail.com

[1] Research Centre in Postdigital Cultures, Coventry University, Coventry, UK

ing that a significant minority of graduates would be better off without having gone to university (DfE, 2019). This paper argues that this crisis is in part the result of a growing trend to view higher education as a means to an end rather than an end in itself. While there is compelling evidence that there is considerable value in higher education as an end in itself, universities are currently over focused on league table rankings of institutions, which do not promote this value (Marginson, 2007). It is argued here that graduate attributes are an alternative means of communication for universities which would allow them to demonstrate their values and differentiate themselves from other institutions. However, there are serious flaws with the current state of graduate attributes which universities would be well advised to address, including a lack of foundation and a lack of measurement.

This paper begins by considering the ontology of graduate attributes then considers some of the problems with them in their current form to make the case for their proper foundation and measurement.

Literature Review

What are graduate attributes?

Graduate attributes (GAs) are one of the ways in which universities can communicate with students, industry, government and their other stakeholders. Simply put, graduate attributes are qualities that the graduates from any given institution of tertiary education are felt to demonstrate. GAs have been defined as follows.

> The qualities, skills and understanding a university community agrees its students should develop during their time with the institution. These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future (Bowden et al. 2000 as cited in Hughes & Barrie, 2010, p. 325).

GAs are not a new idea. Candy et al. (1994), Barrie (Barrie, 2004) and Pitman and Broomhill (2009) all make reference to an address given by Cardinal Wooley at the University of Sydney in 1862.

> Our undergraduates…will, we may reasonably hope, possess a well-cultivated and vigorous understanding; they will have formed the habit of thinking at once with modesty and independence…. Above all, they will have attained the truest and most useful result of human knowledge, the consciousness and confession of their comparative ignorance (Woolley, 1862, p. 21 as cited in Candy et al., 1994).

However, GAs have become formalised by HE institutions, especially in the UK, Australia and New Zealand in the last few decades. GAs manifest as the skills and capabilities that graduates of universities are supposed to have acquired as part of

their study. Graduate attributes "seek to articulate the nature of the education the university offers to its students and through this an aspect of the institution's contribution to society" (Barrie, 2004). Broadly speaking, graduate attributes are concerned with transferable skills rather than vocational skills (Barrie, 2004; Bath, Smith, Stein, & Swann, 2004). Pitman and Broomhill go further stating that "the use of this phrase clearly situates the development of such skills within a formal tertiary educational setting: the implication being that such skills cannot be developed elsewhere" (2009, p. 443).

While the details of graduate attribute lists differ between countries and institutions (Bath et al., 2004; Pitman & Broomhall, 2009)), there are some key characteristics which define graduate attributes. According to Barrie (2004) these are as follows.

1   Graduate attributes are not independent of disciplines but may be developed through multiple disciplines.
2   Graduate attributes are not entry requirements. Rather they are outcomes and as such come about as a result of the process of studying at university.
3   They are referred to as attributes because they involve more than just skills.
4   They come about as a result of the process of HE. There should be no requirement for curriculum extension (Barrie, 2004).

Despite this, there appears to be no common theoretical background for the establishment of graduate attributes, but there are some common themes running through graduate attribute lists. These include areas that have been declared by industry to be desirable attributes for the workplace (critical thinking, professionalism, leadership, problem solving skills etc.) and those which are influenced by theories of what is involved in being a successful member of society (ethics, lifelong learning, global citizenship etc.).

While the above appear to be common themes, it is notable that GAs differ from institution to institution and as stated previously, lack a common theoretical underpinning. Barrie (Barrie, 2006; Barrie & Simon, 2005) challenges the idea that there is a universal conceptualization of what graduate attributes are. This idea is supported by Pitman and Broomhall (2009) whose research investigated the statements of graduate attribute in Australian institutions of higher education. In addition to a general observation that post 1970 institutions differed greatly from older institutions, they found that the institutions' attributes were also different. The one attribute that came close to universality was communication, which their study observed was mentioned in 33 out of 34 statements of graduate attributes of Australian universities (Pitman & Broomhall, 2009).

Why Universities Develop Unique Lists of Attributes

It is clear from the literature that different institutions develop different graduate attributes (Hager & Holland, 2006; Ipperciel & El Atia, 2014; Pauli & Raymond-Barker, 2016; Pitman & Broomhall, 2009). The reasons for this include internal factors, such as the nature of the institution and external factors including the influence of stakeholders.

Internal influences on the development of attributes

In recent years, there has been a shift away from graduate attributes as implicit consequences of university education, to explicit factors considered as outcomes. There have been a number of drivers of this change. Firstly, there seems to be a desire to manifest something which only universities can supply. Pitman and Broomhill (2009) comment that GAs allow universities to position themselves in contrast to vocational providers, noting that "a focus on generic skills is one way in which universities can counter this criticism, as it speaks of a liberal arts tradition and enabled them to articulate an edge over other, more technical, knowledge and skill providers" (p. 441). They also note that the shift has in part to do with an attempt to "justify taxpayer and industry investments and emphasize the importance of higher education institutions in lifelong learning" (Pitman & Broomhall, 2009, p. 443). Finally, there is the pressure from external stakeholders. According to Barrie (2005 as cited in Green, Nelson, Martin, & Marsh, 2006), in Australia, universities published lists of graduate attributes in response to the government making it a condition of future funding.

One of the drivers of the differences in GAs is the nature of the institution. Different institutions have different stakeholders and this can lead to priorities being aligned in a variety of different directions. Hughes and Barrie (2010) observe that "the location of specific groups on a 'most to least' influential continuum will vary between different types of university and between different award programmes within a university" (p. 329).

It is possible that GAs may be viewed by institutions as a means of distinguishing themselves from other institutions. However, this does not seem to be a clear-cut observation given the generic nature of most attribute lists. Despite this, it is possible that universities would like to imply that these are the sorts of attributes that only a university education could provide (Pitman & Broomhall, 2009). With reference to this idea, Hager (2006) lists five common mistakes in the conceptualisation of graduate attributes:

I.   That they are viewed as discrete or atomic entities, thus they can be acquired and transferred singly.
II. That the learning of each of them is thought to be a relatively quick, once-off event. They are acquired complete and finished (this follows on from I).
III. That they are thought of as being acquired by individual learners. So the learning is located within individuals. (This view is often linked with I, but is actually not at all entailed by it).
IV. It is thought that we can readily recognise them when we see them. (It is easy to conclude from I and II that if typical generic attributes are discrete entities and can be acquired readily, then it must be straightforward to identify when someone exhibits them).
V.   It is thought that they are readily and unequivocally describable in language. Hence it is straightforward to develop descriptive understandings of typical generic attributes and to convey these understandings to others in written form. (Hager & Holland, 2006, p. 18).

Subsequently, it seems fair to say that there are often substantial issues with the mapping of attributes to the role that universities want them to play.

External influences on the formation of graduate attributes

It is clear that the drivers of these differences in GAs do not emerge only from within the institution itself, but from external stakeholders such as government and industry. This can lead to a variety of further issues, as Hager and Holland observe:

> It seems that different professions and occupations have somewhat different generic attributes profiles, particularly when they are practiced in many different sorts of contexts. Thus, the greater the number of generic attributes that are detailed and distinguished, the less likely it is that a proposed general profile will be suited to every university program (Hager & Holland, 2006, p. 42).

Both industry and government have had a role to play in the shaping of the modern university, and in both the UK, through the Dearing report and Australia, through the establishment of the Tertiary Education Quality and Standards Agency (TEQSA), the formation of graduate attributes has been a clear demonstration of this influence. For example, legislation in Australia, the Higher Education Standards Framework, states that learning outcomes for each HE course should include critical and independent thinking skills that develop lifelong learning (Birmingham, 2015).

The Australian prescription is more focused towards statements which explicitly point out the value to other aspects of life as well as the world of work (Barrie, 2004). Accordingly, graduates are supposed to be equipped to be "agents of social good" (Barrie, 2004). In general, however, it seems both the UK and Australia have in mind the idea of graduates becoming global citizens (Barrie, 2004; Ennew & Fujia, 2009).

From a governmental perspective, a skilled workforce is desirable and perhaps even necessary with the advances of technology in manufacturing and the increasing importance of service industries. Also, the possession of world class HE institutions can be a source of national esteem. However, as universities receive less governmental financial support, the influence of governments on the directions universities take is reduced. Pham (2012) points out that there has been a decrease in state control exercised over universities. So, as universities rely less on government funding, it may well be argued that governments have less control of the HE sector.

From the perspective of industry, a skilled workforce is essential. The less time a company spends training a new employee up, the more efficient its operations will run. In recent years, industry has had an increasing role in pointing out to the HE establishment what its needs and wants are. Since 1986, in the UK, the National centre for universities and businesses (NCUB, formerly the Council for Industry and Higher Education, CIHE) has existed to facilitate this communication.

However, it is increasingly clear that in the UK at least, despite changes made since the Dearing report, employers continue to be dissatisfied with graduate performance. In the CIHE 2008 report, it is stated that around a third (30%) of employers have problems with graduates' generic employability skills (which include team working, problem solving, communication and so on). A quarter (25%) have issues

with graduates' attitudes to work, almost a half (44%) are critical of graduates' business awareness and an even greater percentage (49%) are unsatisfied with graduates' foreign language abilities (Archer, Davison, Tim, Nick, & Greenhalgh, 2008). A 2016 NCUB report made similar points, observing that in a "Pearson (2015) survey, 54% of 310 respondent employers said they were not satisfied with this component of graduates' work-relevant attributes" (Wilson, 2016, p. 9). The report concludes the following, "despite this steady supply of and growing demand for graduates, employers continue to report that graduates lack particular work-relevant aptitudes" (Wilson, 2016, p. 4).

Waters (2009) points out that with the increase in access to HE, employers have sought new ways to differentiate between graduates which go beyond the degree award and those that don't, as these two types of graduate can be difficult to discern. Furthermore, two trends are causing problems for UK graduates in particular. Firstly, industry is increasingly becoming international while secondly, fewer UK students are obtaining overseas study experience. According to the CIHE report (Archer et al., 2008), the number of English students taking part in European study programmes has fallen from 9500 to 5500 in the 10 years up to 2008. With the UK government's 2020 decision to withdraw from the Erasmus programme (the European Union's student mobility scheme) the number of UK students studying in the European Union seems likely to drop further. Beyond study abroad, 65% of employers stated that it was desirable for graduates to have overseas professional experience (Archer et al., 2008).

Industry has influenced the development of degree programs for over 35 years and remains dissatisfied with the performance of graduates. It is noteworthy that despite this, the demands of employers have not changed. York and Harvey (2005) paint a remarkably consistent picture of the skills expected by employers and state that apart from an increase in demand for IT skills, contemporary research demonstrates this continuity (Fergus, 1981; Caswell, 1983; Gordon, 1983; Wingrove and Herriot, 1984; Green, 1990; Harvey, Burrows, and Green, 1992; NBEET, 1992; Johnson and Pere-Vergé, 1993; British Telecom, 1993; Harvey and Green, 1994; Guirdham, 1995; Brennan, Kogan, and Teichler, 1996; Harvey, Moon, and Geall, 1997; Future Skills Wales, 1998; Conference Board of Canada, n.d.; Dunne, Bennett, and Carré, 2000 as cited in Yorke & Harvey, 2005). Perhaps this is indicative of what Bridgstock (2009) describes as the need for meta work skills, "the abilities required to continuously recognise and capitalise on employment and training related opportunities and integrate these with other aspects of the individual's life" (p. 34), which are necessary due to the changing nature of employment.

Increasingly, industry is bridging the perceived skills gap between HE and the workplace with work experience. Twenty eight of the businesses recently surveyed by the NCUB agreed or strongly agreed with the idea that the main purpose of work experience is to bridge this gap (Wilson, 2016). Work experience is seen to develop generic skills and the NCUB also notes that there is less of a need now for "employers to link work experience to the discipline of study" (Wilson, 2016, p. 9).

It seems clear that industry wants international experience and generic skills from university graduates and that these have been represented in the generic graduate attributes of universities internationally. However, it also appears that despite being

able to input these requests to universities and the growing adoption of corporate methods by universities, employers are not getting the graduates they want.

Concerns arising from industry and government influence on graduate attributes

The influence that external stakeholders have over the formation of GAs is potentially concerning. Reasons for this include an excessive focus on the human capital approach to education, the extent to which ethical principles inform business decision making, a lack of clarity over how industry measures skills attainment and the tension between the international interests of institutions and the national interests of governments.

Human capital theory and education

Firstly, too much of a focus on the human capital approach and the economic value of an education can lead to the charge that the worth of education exists merely as a means to economic ends. The human capital approach, when applied to education, values education systems according to the extent that they can promote economic growth (Gillies, 2015). Education is viewed as an investment designed to return economic benefit, resulting in the other benefits of an education being less valued and potentially ignored in the design of new education systems.

The role of ethical principles in business decision making

The extent to which ethical principles drive business development is also a concern. While there seems to be an ethical imperative underpinning the establishment of generic university graduate attributes, it appears that business does not share such an ethical model. Instead of the mandate to do good, modern corporate thinking appears to be solely mandated to create wealth. The history of corporate scandals suggests a way of being that involves corporate self-interest over any notion of the good apart from financial gain. This has also manifested in university programs as Jackling and De Lange (2009) comment with regard to the mandate to promote ethical behaviour in accounting courses because of the 2008 financial crisis.

The lobbying of fossil fuel exploiting companies and funding of climate change denial research further illustrates the point that institutions which do not display ethical behaviour may not be the best placed to input into the values to be demonstrated by graduates. As Rhodes (2016) comments, the 2015 Volkswagen scandal illustrated "how established organizational practices of corporate business ethics are no barrier to, and can even serve to enable, the rampant pursuit of business self-interest through well-orchestrated and large-scale conspiracies involving lying, cheating, fraud and lawlessness" (p. 1). Soltani (2014) observes in a study of ethical failures in the USA and Europe including Worldcom, Enron and Parmalat that the scandals were compounded by "ineffective boards, inefficient corporate governance and control mechanisms, distorted incentive schemes, accounting irregularities, failure of auditors, dominant CEOs, dysfunctional management behaviour and the lack of a

sound ethical tone at the top" (p. 251). Industry opinion may not therefore, be a suitable bedrock for the establishment of personal developmental attributes.

There may be an argument that the involvement of industry with the setting of graduate attributes is about skills, not values. However, graduate attributes are not just about skills, they are about values and as noted above, business values as epitomised by scandals like Enron, Worldcom and Volkswagen, do not constitute an ethical foundation of any reasonable sort (Rhodes, 2016; Soltani, 2014). In fact, given the divergence of values, it may be argued that universities should be inputting their values on industry and not the other way around.

The extent to which industry measure graduate attributes

As mentioned previously, in the UK, industry has had input into graduate attributes at least since the establishment of the CIHE in 1986. As also noted above, industry is still not satisfied with the performance of graduates. However, there are questions over how employers measure the skills of the graduates they receive. The literature (such as the NCUB reports) seems to be based on employer perceptions. These subjective judgements may not be the best vehicle for making decisions about skills development. Furthermore, it may be the case that the development that occurs at university is not the same as the development that occurs in the workplace. The reason for this may be that students are normally paying to go to university while people are traditionally paid to go to work.

The tension between international universities and nation states

Finally, there may be a tension between the international ambitions of universities and the national imperatives of nation states. The role of government can result in attributes that have a distinctly nation centric feel rather than an international focus, which, given trends in the internationalisation of HE and the expansion of transnational education, opens up, for example, the possibility of charges of cultural imperialism and relevance for the countries in which international branch campuses are located. This appears to have been a consideration in the establishment of Nazarbayev University in Kazakhstan, which adopted a unique model of partnering with multiple international universities (Mahon & Niklas, 2016).

This example also leads to the problem as seen from the other side of the equation. Governments may use graduate attributes to enhance nationalism within the state in which the university is located. The Ministry of Education and Science (MoES) in Kazakhstan for example, defines the purpose of education as the formation of citizens of the country, and states that the school system has a mission to blend patriotism with other common human values (Fimyar, 2014). The international ambitions of some universities and the national imperatives of some countries would seem to be at least a potential cause of tension in the establishment of graduate attributes.

The lack of influence of theories of human development in the formation of graduate attributes

Given the influence education has on human development, it seems reasonable that theories of human development would play a role in the development of gradate attributes. However, with regard to many universities, it is not clear exactly how these lists have been composed or which principles underpin them. To begin with, it seems fair to claim that education plays an important role in human development. Higher education and the university experience must then also play a role in human development. While it might be said that there is a fairly consistent message coming out of industry which has fed into the establishment of the graduate attributes related to skills, there does not appear to be a consistent theoretical foundation for those attributes connected with citizenship and human development. A review of the literature on graduate attributes by Allen and Simpson (2019) found "no examples of precise methodology by which graduate attribute frameworks are constructed and little evidence of how they are used to underpin course design" (p. 2) This in turn leads to problems in measurement and assessment, which will be addressed later. As Coetzee (2014) notes, "problems of implementing the graduate skills and attributes agenda in higher education are generally attributed to the lack of a clear theoretical foundation and how these skills and attributes should be taught, assessed, measured and evaluated" (p. 899). Certain institutions such as Oxford Brookes have considered a number of theoretical inputs especially with regard to citizenship including Nussbaum, Tagore, Sharma, the CRICK report into UK citizenship and the UNESCO Delors commission's four pillars of learning (Haigh & Clifford, 2010). However, it seems that explicitly relating attributes to theories of human development is the exception to the rule for majority of universities.

Relating the role of the university to graduate attributes

While different universities have different functions and roles to play, it might be fair to conclude that an institution's unique identity be represented in the values associated with its graduate attributes. As universities develop brands, there may well be an influence of the brand values feeding into these attributes. Newman pointed out that he was addressing two criticisms when he wrote about the university, that there was a disconnection between what was studied and its relevance to working society, and that there was an exclusiveness associated with belief (Pelikan & Newman, 1992). Here it would seem that there is continuity with the issues connected with graduate attributes which go beyond content knowledge to encompass skills and values.

Altbach (2013) argues that universities are undergoing a shift from being a public good, subsidised by the state and bearing a mandate to improve society, to a private good, expected to be paid for by the individual and manifestly for the benefit of the individual. This may be the case and certainly a look at institutions internationally reveals a scale of sorts on which institutions occupy places according to their relative public or private good mandates, with fully funded public intuitions like Nazarbayev University in Kazakhstan at one end of the scale and completely for profit private ventures like the University of Phoenix in the USA at the other end of the scale.

However, this distinction does not appear to be explicitly demonstrated in either institution. Both institutions feature reference to skills and values of a similar type. For example, Phoenix states "you will embrace diversity and treat others with respect" (University of Phoenix, 2017) while Nazarbayev University states that graduates will be "cultured and tolerant citizens of the world while being good citizens of their respective countries" (Nazarbayev University, 2017). Where universities stand, in terms of their mission to be public or private goods, could be manifested through their graduate attributes. However, this does not appear to be common practice when institutions develop their graduate attributes.

Problems with student acquisition of graduate attributes

As noted earlier, despite a degree of continuity in content, in practice there are differences of opinion as to what specifically graduate attributes are and how they are developed (Bath et al., 2004). This has fed into the confusion of how graduate attributes should be implemented. According to Barrie (2004) there is a lack of a clear conceptual or theoretical base for decisions about them and this has led to certain problems. Initiatives designed to promote the skills associated with graduate attributes have met with difficulties from staff who have differing opinions as to what their responsibilities to teach are (Barrie, 2004; Bath et al., 2004). It seems that some academics are of the opinion that these skills should come about via the study of any substantial academic discipline. In any case, these issues are found both in Australia, where teachers did not share a common notion of the outcomes, let alone the teaching and learning processes that might lead to them (Marton and Booth 1997 as cited in Barrie, 2004) and the UK, where according to Bennett et al. (1999 as cited in Barrie, 2004) initiatives failed due to scepticism amongst staff and a lack of clarity surrounding the process.

Further issues with graduate attributes include the relative weighting of the areas within them and assessment of those areas. At the University of Tasmania for example, there are suggestions to involve student reflection and self-assessment with regard to the extent that attributes are met. This could involve an on-going portfolio and would involve reflection as a method of assessing graduate attributes, with students taking responsibility for tracking their own achievement. Crebert, Bates, Bell, Patrick, and Cragnolini (2004) argue that until skills are part of formal assessment, students will not take them seriously. However, formal assessment constituents an external extrinsic motivation and may encourage a surface approach which would rather defeat the purpose. Despite the lack of formal assessment of skills, employers do make judgements on skills (Wilson, 2016), however as noted earlier, how these judgements are made apart from subjective observation on the part of the employer, is unclear.

Furthermore, it is difficult to see how values could be included in formal assessment. Oxford Brookes defines three levels of attributes connected with citizenship which correspond to foundation, undergraduate and post graduate degrees (Haigh & Clifford, 2010), yet this seems equally difficult to qualify if only because of the notion of citizenship at a foundation level being different from citizenship at a post graduate one.

The nature of learning in general is a contested concept. There appears to be a substantial difference between the way children learn a language and adults learn a second language for example. While a thorough analysis of the literature surrounding this is beyond the scope of this study, the proposition that how humans learn is a contested concept seems safe to assert. As Carl Rogers pointed out, learning even simple tasks or concepts is a complicated matter (Rogers, 1994). Given the diaphanous nature of graduate attributes, the notion of how they might be acquired seems surely to be at least as complicated if not even more complicated.

Hager and Holland points out the learning of the sorts of things that graduate attributes are concerned with constitutes learning as a process rather than the acquisition of a product:

> Some may be 'skills' of various types. Others are, strictly speaking, not so much skills as attitudes and dispositions. These might be more accurately thought of as relational complexes that connect persons and particular contexts, rather than as unitary 'things'. Hence, these attitudinal and dispositional qualities may be more accurately viewed as products of cultural, ethical and social circumstances that can be refined and modified by knowledge and reflection. In these circumstances, notions of acquisition and transfer of discrete entities by individual learners are simply misleading ways to think about what is happening here (p. 21).

Another concern is the nature of how knowledge is demonstrated. Polanyi's theory of the tacit dimension (Polanyi, 2003) appears to apply here. With levels of knowledge above the basic, it is very difficult to describe understanding in ways other than demonstrating. While there are ways in which this can be achieved in terms of assessment, once the area of graduate attributes is considered, the articulation of or demonstration of, for example, world citizenship or critical attributes, is not straightforward. In the same way that Rogers (1994) argues that anything beyond the simplest of tasks cannot be taught without the desire or will of the learner, it seems that anything beyond the most straightforward types of knowledge cannot be easily assessed.

Furthermore, the skills and attributes concerned often have different meanings across different disciplines which must make their implementation more complicated still. A 2009 study by Jones investigated the role of disciplinary epistemology in the conceptualisation of graduate attributes. The study compared the teaching of GAs in five subject areas (physics, history, economics, medicine and law) and found that critical thinking, analysis and problem solving are conceptualised in very different ways (Jones, 2009). Subsequently the GAs listed by an institution may actually differ according to the subject studied by the graduate.

Jones (2013) further investigated the role of disciplinary context in the establishment of GAs in an attempt to understand why there was such variation. A variety of factors in addition to subject discipline were found to have an impact. These included the traditions and pedagogy of the institution and the nature of the faculty community (Jones, 2009). Jones (2013) observes "higher order graduate attributes are in fact highly complex and worthy of more detailed scrutiny than they have received in the past" (p. 602). Jones (2013) concludes that "in order to understand teaching and to

successfully implement graduate attributes, it is necessary to understand the culture in which this occurs" (p. 593).

Generic attributes may also be resisted by certain institutions and departments because they do not reflect or are not implemented in such a way that corresponds to the epistemology of that department:

> Graduate attributes succeed when they are conceptualised as integral to the 'community', for example when they fit with the disciplinary and departmental culture, with the epistemic frames and with teaching practice. However, if they are considered as external to this they are treated as peripheral and largely ignored (Jones, 2013, p. 601).

This reinforces the idea that GAs need to be given more consideration by institutions if they are to reflect the development that students undergo and if they are going to be embraced by the faculty teaching those students. However, as noted early, the drivers behind the establishment of GAs are many and not limited to the institution itself but involve industry and government. In this sense, it may be difficult for institutions to properly consider their internal stakeholders (faculty, students) as well as their external stakeholders (industry and government). As Jones (2013) notes, GAs "are promoted through policy and enacted through pedagogy" (p. 602). Subsequently the implementation of graduate attributes is not a straightforward proposition.

Problems with the measurement of graduate attribute acquisition

Graduate attributes are clearly an important aspect of universities' missions. However, there are questions as to how these attributes are formulated, what the understanding of staff is towards these attributes, and how achievement of these attributes is measured. Oliver and Jorre de St Jorre (2018) note that lists of attributes indicate what graduates should be able to do, but do not indicate the level to which they can do those things. Bowden, Hart, King, Trigwell, and Watts (2000) recommend a multi-faceted approach involving implicit and explicit content related assessment as well as some sort of on-going reflective portfolio. Radloff, De La Harpe, Dalton, Thomas, and Lawson (2008) argue that the point made above regarding academics lack of enthusiasm to engage with graduate attributes, prevents any meaningful assessment. Hughes and Barrie (2010) argue that Institutions should explicitly embed GAs in institutional assessments:

> Though many claims are made with respect to the implementation of graduate attributes, there is growing acceptance of the proposition that the strongest evidence of their achievement is their explicit embedding in assessment (p. 325).

Still, if a university states that their graduates will display certain characteristics, it seems fair that there would be some form of assessment of this. However, this does not appear to be the case. The problem with assessment is brought into focus by the evidence (noted above with regard to the satisfaction of industry) that suggests graduates do not possess the attributes universities say that they do. Crebert et al. (2004)

comment that for universities to guarantee that students would graduate with all the specified attributes would be to open themselves to litigation. Instead Crebert at al (2004) argue that universities should guarantee that students will have the opportunity to develop the prescribed attributes.

However, from the perspective of students and employers, this may seem to be unsatisfactory. After all, there is a difference between having attributes and having had the opportunity to develop attributes. This may go some way to explain the fact that despite these lists of attributes being rather similar throughout HE, as the 2008 Council for industry and higher education report points out, approximately a third of employers (30%) have issues with graduates' generic employability skills (Archer et al., 2008). These skills, including teamwork, communication and problem solving are almost perennial constituents of lists of graduate attributes, and many graduates do not appear to possess them. There appears to be a widespread dissatisfaction with the skills that graduates display (Wilson, 2016). However, what is not clear, is how employers evaluate these skills beyond the subjective opinions of individuals in industry as represented in survey responses. For example, Wilson's (2016) study involved a survey of HR departments. The results were derived from 34 respondents who all worked in HR departments and constitute only the opinions of those individuals, as there were no measures of performance other than whether the HR person was satisfied or not. It could be argued that data of this sort alone, may not constitute sufficient evidence to alter the course of graduate attribute development for universities.

So, it is claimed in this paper that there are potentially some continuity problems between proposed graduate attributes and the actual attributes of graduates. There is a sense that universities do not police the development of graduate attributes. That the universities have implemented their graduate attributes on the recommendation of industry, but in a rather half-hearted way. As noted earlier, students are said to graduate with the attributes, but employers fail to observe their presence (Wilson, 2016). This is perhaps not surprising as apart from the content assessment provided though the traditional phenomena of exams and course work, there is no real assessment of skills and values.

Skills can be difficult to measure. However, there are well documented examples of successful skills assessment. These include examinations of musical instrument proficiency such as the UK's Associated Boards exams and the practical examinations in health sciences such as those of surgical competence or physiotherapy. However, outside of certain vocational courses, such as physiotherapy, practical skills assessment is uncommon, especially the assessment of those practical skills that appear in lists of generic GAs.

Where attempts have been made to measure skills related GAs, these have been largely unsatisfactory, as skills related GAs are difficult to conceptualise and are context contingent (Jones, 2009, 2013; Pitman & Broomhall, 2009; Tremblay, Lalancette, & Roseveare, 2013). It seems fair to conclude that values related GAs are similarly difficult to conceptualise and measure. A 2013 study by Oliver investigated the assessment of GAs at Curtin University. The assessment had three elements, integrating GAs into the constructive alignment of course design, surveys to investigate

graduate and employer perceptions of GA achievement and self and peer reporting systems (Oliver, 2013).

It is clear that the issue of assessment of GAs remains a problem. As Oliver (2013) notes, "a substantial part of the challenge is finding evidence that improvement has occurred – there is no universally accepted way of measuring graduate achievement of attributes and capabilities" (p. 458). Oliver (2013) further explains that generic measurement instruments, such as the Collegiate Learning Assessment and the Course Experience Questionnaire "fail to capture evidence of achievement of attributes that a university such as Curtin holds to be important" (p. 458).

Conclusions

Graduate attributes have the potential to constitute a transparent form of communicating both a university's mission and what distinguishes that institution from others. However, in their current standard, lists of graduate attributes do no not typically achieve this potential as they frequently lack a theoretical foundation and do not lend themselves to straightforward means of attainment measurement.

This paper has argued that the perception of the degree as a means to an end is not desirable for universities. There is increased competition for graduate level jobs which means that a degree is no longer a guarantee of a better job and the cost of higher education is so great that for many graduates the debt associated with obtaining a degree is far greater than the financial rewards of having one.

However, there is compelling evidence that a degree is an end in itself. That the investment in personal development is advantageous for both the individual and for society. While this sort of development is often described in institutions' mission statements and graduate attributes, the lack of theoretical foundation and attainment measurement weakens the claims that are made.

As it stands, measurement of skills related attributes appears to be the remit of individuals in industry applying subjective judgement without proper criteria or methods. This has had an overweighted and undesirable impact on the way universities organise themselves.

It seems likely that many universities would benefit from revisiting their graduate attributes. These can send a powerful message about the qualities that institution values, the nature of the environment the institution creates and the unique mission that the institution has. When drafting lists of graduate attributes, universities should consider how those attributes might be measured. Locating graduate attributes within the theories of human development which best represent an institution's values would likely facilitate such measurement.

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