

# Making the Invisible Visible

Illuminating undergraduate learning outcomes beyond content and skills

An Ako Aotearoa National Project Fund Report



introducing the

**SEEN**

SPECIFY EXPLAIN EMBED NUDGE

framework



## **Making the Invisible Visible**

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<https://ako.ac.nz/knowledge-centre/illuminating-undergraduate-learning-outcomes/>

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## 1. EXECUTIVE SUMMARY

Education is more than just content and skills acquisition. It enhances each student's approach to learning, self-efficacy, professional readiness and disciplinary awareness. However, this learning is often invisible on academic transcripts – and to employers and students themselves. *Making the Invisible Visible* was a two-year research project with three aims:

- To identify and define graduate attributes that are often considered aspirational or 'invisible',
- To develop a framework to observe, analyse and report them, and
- To enable staff to identify and incorporate these 'invisible' graduate attributes into course design.

The project was cross-disciplinary, extending across six university disciplines – English (Arts), Psychology and Chemistry (Science), Dance and Music (Creative Arts), and Law (Professional). Following a rigorous in-depth review of the literature, one of the first issues encountered when defining graduate attributes was the plethora of related, sometimes complex, terms and conceptualisations that describe them. In order to have consistency across the research team for the definition of 'invisible' graduate attributes, a definition was developed by the team as:

Those attributes that are typically not assessed and evaluated or perhaps even articulated within a discipline or recorded on transcripts. Rather, they are often assumed to be acquired through implicit or tacit learning. Such 'invisible' attributes can be observed, but often as qualities of a person, rather than of

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their work. For employers they often mark the difference between a qualified and an excellent candidate.

A mixed methods approach was adopted during the project. Semi-structured interviews were conducted with two to three academics from each of the six disciplines (17 in total), and one or two employers (10 in total) who regularly recruit graduates from each of those disciplines. Student surveys were developed based on the analysis of the interview data and, using Qualtrix software, administered to approximately 1,000 undergraduate students from the six disciplines, recognising that greater numbers were recruited in some (for example, Psychology and Law) compared with others (for example, Dance and Music).

Throughout the process of data collection and analysis, initial iterations of the framework were designed and developed with feedback gathered from a range of international conference presentations. A final framework was completed, to be used with teaching staff to identify 'invisible' graduate attributes which occur within a course, or to assist in curricula development, to include the particular 'invisible' attributes selected. The framework is also able to be used to identify effective university teaching, evaluate innovative course delivery, and enable quality teaching practice to be compared within and across disciplines. Using the framework, graduate attributes (visible or 'invisible') were identified and compared across disciplines, recognising similarities as well as differences in how they might occur in Arts, Science, Creative Arts or Professional disciplines. The framework is also relevant to all other disciplines in tertiary education, facilitating the practical evaluation of curricula, courses and teaching, and making visible much student learning that is currently 'invisible'.

The conceptual framework consists of the acronym SEEN representing four capabilities, organised according to level of complexity:

- **Specify** - Identify and name a particular 'invisible' attribute and a situation when it can be observed.
- **Explain** - Describe the features of the attribute, and why it is relevant in a given situation.
- **Embed** - Enact the attribute in class moving from a description of the attribute to application.
- **Nudge** - Translate the attribute beyond the university environment, to work and life settings. Teaching/learning activities might include specific activities that enable students to do so.

The first two capabilities, 'specify' and 'explain', relate to identifying and defining a particular attribute. The third capability, 'embed', describes the student's ability to use the attribute in the classroom, and the fourth capability, 'nudge', to translate it to other contexts. Within each of the four SEEN capabilities, there are three stages: a learning objective (what a student should be able to do once the attribute is developed); teaching/learning activities (how the student will be enabled to develop the attribute); and observable evidence (what a student will be able to do who has developed the attribute).

The SEEN framework (see Table 1 below) provides a tool for unpacking the complex dimensions of 'invisible' attributes. It provides a language by which 'invisible' attributes can be conceptualised in terms of their observable behaviours, which can then be actively developed rather than viewed as innate qualities of an individual. The framework also provides a basis for a three-way conversation between students, lecturers and employers, so that expectations and evidence can be clarified within and across these groups.

**Table 1: SEEN Framework with explanations for each dimension**

<p><b>Name of attribute (A)</b></p> <p><b>Discipline</b></p>	<p><b>Learning Objective</b></p> <p><i>What a student should be able to do once the attribute is developed</i></p>	<p><b>Teaching/Learning Activities</b></p> <p><i>How the student will be enabled to develop the attribute</i></p>	<p><b>Observable Behaviour</b></p> <p><i>What a student will be able to do who has developed the attribute</i></p>
<p><b>Specify</b></p> <p>Where/when do you see it?</p>	<p>Where would (A) occur in your discipline OR in this situation?</p>	<p>How do teachers develop (A)?</p>	<p>Can students identify an example of (A) in their discipline or in this situation?</p>
<p><b>Explain</b></p> <p>What does it look like?</p>	<p>What are the relevant features of (A)?</p>	<p>How do teachers help learners to understand (A)?</p>	<p>How do students describe (A)?</p>
<p><b>Embed</b></p> <p>How does it appear in class?</p>	<p>How would a student be able to demonstrate (A) in the classroom?</p>	<p>How do teachers help learners to demonstrate (A)?</p>	<p>How do students demonstrate (A) in the classroom?</p>
<p><b>Nudge</b></p> <p>How does this translate beyond the course and class?</p>	<p>How might a student be able to apply (A) outside the classroom?</p>	<p>How do teachers help learners apply (A) outside the classroom?</p>	<p>How might students demonstrate (A) outside the classroom?</p>



Another output of the project was the design and creation of three guides for the different groups of participants:

- Students: You are more than your transcript
- Lecturers: A guide for teaching and evidencing graduate attributes
- Employers: A guide to graduate attributes for employers

These guides were developed recognising that the framework would be used differently by the three groups of participants, and are in the form of pamphlets. Each pamphlet includes an explanation of what 'invisible' attributes are, the SEEN framework with explanations of the acronym and how it can be used for each particular group, some cases studies, resources, and useful references.

The framework and the guides offer a way forward for supporting students and academics to have a range of skills that go beyond discipline-specific knowledge and meet the demands and expectations that employers have of graduates. More importantly, the framework might support students in developing the attributes crucial to their future identities for their social good, and be able to engage critically and constructively with their world beyond the classroom.

## 2. INTRODUCTION

The late twentieth and early twenty-first centuries have seen a “growing convergence of the goals and values of business, government and education” (James, Lefoe, & Hadi, 2004, p. 174). This has led to a general acceptance that universities should equip graduates with more than just an in-depth knowledge of disciplinary content if they are to survive and thrive in the ‘super complex’ world beyond the university (Barnett, 2004; Robley, Whittle, & Murdoch-Eaton, 2005). Employer surveys, government reports and hundreds of research papers have attempted to pinpoint the graduate skills and attributes that will answer this need, and university curricula everywhere have been designed and redeveloped to address them (Schech, Kelton, Carati, & Kingsmill, 2017). However, those aspects of a graduate’s education that are beyond disciplinary content knowledge “remain ... notoriously difficult ... to articulate and develop” (Knewstubb & Ruth, 2015, p. 4). This is in part because many of the skills and attributes required of and by graduates, although ostensibly included in curricula, remain difficult to teach and assess, so have not provided graduates, employers or society more generally with the outcomes promised in many university graduate profiles (Donleavy, 2012; Kember, Hong, Yau, & Ho, 2017). Where such attributes are described, often they are treated largely as ‘aspirational’ (Elatia & Ipperciel, 2015; Walther & Radcliffe, 2007), although this is beginning to change (Normand & Anderson, 2017). Unlike the mostly measurable, or visible, skills and attributes associated with formal academic learning, many of the graduate attributes still remain largely ‘invisible’ (Jorre de St Jorre & Oliver, 2018; Kember et al., 2017).

Our cross-disciplinary, cross-institutional research project was based on the premise that education comprises more than the disciplinary content or generic skills and attributes that are ‘explicitly taught’, ‘required’ and ‘evaluated’ (Sumsion & Making the invisible visible: Illuminating undergraduate learning outcomes beyond content and skill

Goodfellow, 2004, p. 334). We argue that higher education, albeit less directly, also enhances students' learning processes (e.g. autonomous learning), social aptitude (e.g. diversity awareness, collaborative skills) and professional readiness (e.g. time-management, resilience). Such learning does not appear on academic transcripts, and so may be 'invisible' to students and employers. Working across six disciplines – English (Arts), Psychology and Chemistry (Science), Dance and Music (Creative Arts), and Law (Professional) – the project has three aims:

- To identify and define graduate attributes that are often considered aspirational or 'invisible'
- To develop a framework to observe, analyse and report them
- To enable staff to identify and incorporate these 'invisible' graduate attributes into course design.

### 3. LITERATURE

One of the first issues encountered when defining graduate attributes is the plethora of related, sometimes complex, terms and conceptualisations that describe them. Over time a range of adjectives such as ‘transferable’, ‘generic’, ‘soft’, ‘key’, ‘graduate’ and ‘employability’ have been diversely paired with nouns such as ‘skills’, ‘attributes’, ‘outcomes’ and ‘capabilities’, as researchers attempt to pin down exactly what constitutes knowledge not directly tied to discipline content knowledge (Sumsion & Goodfellow, 2004). For the sake of clarity, we use the term ‘graduate attribute’ to encompass many of these terms, except where researchers have specifically provided a different term.

Many researchers and government bodies have attempted to define graduate attributes. For example, Barrie (2006, p. 217) describes them as generic and transferable: “the skills, knowledge and abilities of university graduates, beyond disciplinary content knowledge, which are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree”. Bowden, Hart, King, Trigwell, and Watts (2000) offer a more contextualised definition:

“Graduate attributes are the qualities, skills and understandings a university community agrees its students should develop during their time with the institution and, consequently, shape the contribution they are able to make to their profession and society... They are qualities that also prepare graduates as agents of social good in an unknown future.”

(Bowden et al., 2000, p. 1)

Perhaps due to the current international concern with employability, nuances of Bowden et al.'s definition are increasingly lost; for example, their perspective appears to be that graduate attributes are not determined by employers and governments, but by university members. Additionally, graduate attributes are not solely for the job market but are tools to help graduates engage critically and constructively with their world beyond the classroom (see, for example, Kember et al., 2017). Nonetheless, in seeking to determine 'what counts' as a graduate attribute, it is often the government's or employers' voices that get our attention, and the attention of our graduates. In Australia and the UK, many universities are incorporating a range of graduate attributes into their curriculum to increase graduate employment prospects (Clarke, 2017; Mladenovic, Martinov-Bennie, & Bell, 2017; Schech et al., 2017). Thus, graduate attributes and employability have been treated as synonymous in a number of studies. For example, while the list of attributes under the umbrella term 'graduate attributes' is extensive, some are rated more highly by prospective employers. Bowman (2010) identifies eight key employability skills: communication, teamwork, problem-solving, self-management, planning and organising, technology, lifelong learning, initiative and enterprise. Schulz (2008, p.147) provides a similar, longer list, including both cognitive and social skills, namely, "communication, critical and structured thinking, problem-solving, creativity, teamwork capability, negotiating, self-management, time management, conflict management, cultural awareness, common knowledge, responsibility, etiquette and good manners, courtesy, self-esteem, sociability, integrity/honesty, empathy, work ethic". These lists blend attributes which are easily embedded in curricula, such as 'problem-solving' and 'teamwork', with others which are difficult, or perhaps even impossible, to teach and/or assess, such as 'initiative and enterprise' or 'courtesy' or 'lifelong learning'.

There has been an increased focus internationally on graduate attributes and employability skills (Bridgstock, 2009; Clarke, 2017; Green, Hammer, & Star, 2009; Jackson, 2014; Jones, 2009a, 2009b, 2013). Responding to government and employer requirements (Bridgstock, 2009; Donleavy, 2012; Litchfield, Frawley, & Nettleton, 2010), universities have focused on developing student employability by fostering graduate attributes which are viewed as transferable to the workplace. Graduates are expected to work independently, or in teams, to be able to up-skill or re-skill themselves, and to develop personal and transferable skills like communication, problem-solving and computer literacy (Jackson & Wilton, 2017), and, increasingly, an international perspective (Crossman & Clarke, 2010).

As a result, universities, governments and employers' organisations have all constructed lists of desirable graduate attributes (Bridgstock, 2009), and academics have implemented measures for mapping, teaching and assessing them. Such measures have met with mixed success, for a number of reasons (Cranmer, 2006; de la Harpe & David, 2011). According to Bridgstock (2009), there have been very few attempts to identify commonalities and differences between the lists and synthesise this with the research. And, as Daniels and Brooker (2014) argue, such lists are problematic, because they focus on students' future identities as workers, rather than on their current identity as students, and because there is a frequent mismatch between graduate attributes and the work graduates often end up doing. Likewise, Donleavy (2012) argues that we need to focus on the social good as well as the employability aspects of graduate attributes.

Understandably, employers focus primarily on employability skills. Some focus on transferable skills such as teamwork, leadership and problem-solving (Raybould & Sheedy, 2005), while others focus on 'interpersonal competencies' such as written communication skills, presentation skills, group work and 'interpersonal skills' (Andrews & Higson, 2008). But identifying which skills to develop to bridge the gap between education and employment is an ongoing challenge, and deciding which of these ought to be demonstrable by 'work ready' graduates has been difficult (Bridgstock, 2009; Ferguson, 2010). Moreover, this focus on employability has not gone uncriticised. For example, Jackson (2014) argues that it devalues academic inquiry, relies on ambiguous terminology, and ignores the challenge of assessing such attributes. Green et al. (2009) consider the implementation of graduate attributes problematic because 'attributes,' they claim, are not the same as 'skills,' and 'generic' does not necessarily equal 'transferable'. The confusion is exacerbated when desirable attributes include values (such as respecting different views) and higher order cognitive attributes (such as engaging in research and enquiry) and 'attributes' – increasingly being adopted in preference to 'skills' – to recognise knowledge, dispositions, attitudes and values are more complex than skills (Green et al., 2009).

Attributes may also vary in their discipline specificity, depending upon the way they are enacted by academics, students and potential employers. There is debate between the 'generalists' and the 'specifists' (Green et al., 2009). According to generalists, attributes are generic and can be taught separately from content and applied to any discipline. Specifists insist that graduate attributes are irrevocably shaped by their disciplinary epistemology (Jones, 2009a, 2013).

For example, Jones argues that critical thinking, problem-solving and communication are social practices, collectively produced in a given setting and involving tacit patterns of understandings and interaction. She claims that such patterns are not explicitly taught, but represent disciplinary knowledge in action. There may be an expectation that students learn to express their ideas in a clear and well-organised manner, but the forms and genre of communication will vary between disciplines. For Jones, this demonstrates the importance of disciplinary culture against a generic 'one-size-fits-all' approach (see Bridgstock, 2009). In between these two positions lie the 'relativists', who argue that a graduate attribute developed in one context can be transferred to another (Green et al., 2009).

This discourse as to whether graduate attributes are – and should be – generic or discipline-specific (Hughes & Barrie, 2010; Jones, 2009b, 2013) has continued to prompt significant debate. For example, 'communication skills' will have quite different meanings and observable outcomes if we compare them for a primary Education graduate, a Drama graduate or a Chemistry graduate. What is valued and included or excluded from the definition of 'communication skills', and what is and is not assessed, will vary from discipline to discipline. Certain graduate attributes will be viewed as integral to one discipline and part of disciplinary knowledge, while they may be viewed as peripheral to another (Schulz, 2008). Thus, when considering the concept of what we refer to as 'invisible' graduate attributes, we need to bear in mind that an attribute that appears invisible in one context, may be considered visible, or even disciplinary knowledge in another (Schulz, 2008).

Within the current outcomes-based curriculum discourse, graduate attributes are often treated as visible, assessable, and potentially transferable (Robley et al., 2005;



Spencer, Riddle, & Knewstubb, 2011). However, there are many that are much harder to teach or assess, and often ignored, incorporated into the curriculum in only a limited way or viewed as 'naturally developing'. Yet, these attributes are often a vital part of students' development at university, whether as prospective employees, well-rounded adults, or as "agents of social good in an unknown future" (Bowden et al., 2000, p. 1). Thus, the project reported here was designed to identify and define such 'invisible' attributes in ways that students and academics, and not just employers, could observe their salient features. We argue that, if such features can be observed, we will be better able to establish ways in which they can be actively taught and, in turn, articulated and evidenced by students as meaningful aspects of their tertiary experience.

#### 4. METHOD

At the project's inception, we made a simple preliminary distinction between two types of graduate attributes: 'visible' attributes and 'invisible' attributes. In this pre-stage we roughly defined 'visible' attributes as graduate attributes that it is possible to teach, practise and assess (based on Sumsion & Goodfellow, 2004), and whose features can be defined within curriculum plans and assessment rubrics. By contrast, we defined 'invisible' attributes as graduate attributes which are often difficult to teach and observe, and even more difficult, or perhaps even impossible or unethical, to assess (for example, work-life balance or time-management). They are often not included on assessment rubrics and transcripts and may be difficult for students to articulate and evidence to others.

From this point, our multi-disciplinary, cross-institutional team worked iteratively to define the parameters of an 'invisible' attribute; then, mapped and compared the features of 'invisible' attributes across six disciplines, together with the ways they are taught and practised. This comparison was designed to identify both generic and disciplinary features of 'invisible' attributes, together with preliminary examples.

##### *Refining our definition of 'invisible' attributes*

Initially, the team collaborated to unpack definitions as they were described in literature and experienced by team members in their own disciplinary practices. We soon realised, in line with Schulz (2008), that what might be viewed as a core disciplinary skill in one context (such as critical listening in Psychology) might be peripheral or even 'invisible' in another (such as Chemistry). Another difficulty the team faced were differences and ambiguities in our understandings of the language

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that was often used to describe graduate attributes. For example, using the adjective 'soft' raised debate around the assumptions and values placed on these attributes. Did 'soft' mean they were not as important? Were they less valued? Working through these different questions, we reached agreement on a more nuanced definition of 'invisible' attributes developed from commonalities that emerged in our discussions. Though we were wary of adding a new term to a terminologically profuse and confusing lexicon (Matteson, Anderson, & Boyden, 2016), we developed a working definition of 'invisible' attributes as:

Those attributes that are typically not assessed and evaluated or perhaps even articulated within a discipline or recorded on transcripts. Rather, they are often assumed to be acquired through implicit or tacit learning. Such 'invisible' attributes can be observed, but often as qualities of a person, rather than of their work. For employers they often mark the difference between a qualified and an excellent candidate.

Although the term 'invisible' implies that 'invisible' attributes cannot be seen, this is not in fact the case. For while they are not commonly listed on a student's transcript, or in assessment rubrics, they are spoken of when academics and employers discuss graduate profiles (Raybould & Sheedy, 2005) or when students talk of preparing themselves for the workplace (Tomlinson, 2008; Velasco, 2012).

Using this definition, we established preliminary lists of 'invisible' attributes, informed by research literature and the team's experience, such as resilience, self-efficacy, leadership, professionalism and empathy, among others.

We developed categories for specific 'invisible' attributes to include: generic definition (and discipline-specific definitions where appropriate); level of visibility (assessability) across disciplines; learning activities that might support its development; and any issues associated with that attribute.

### ***Data Collection and Analysis***

A mixed methods approach was adopted during the project. Semi-structured interviews were conducted with two to three academics from each of the six disciplines (17 in total), and one or two employers (10 in total) who regularly recruit graduates from those disciplines. Convenience sampling was used to select experienced academics, who taught undergraduate students. Employers were identified by disciplinary team members or by the academic interviewees. In academics' interviews, we focused on what an ideal graduate in their discipline looked like and how they assessed attributes, and for employers, what attributes they looked for in new employees and how they identified these, to elicit descriptions of both visible and 'invisible' attributes. Ethics approval was granted by both the University of Auckland and Victoria University Wellington. Transcribed interviews were analysed using nVivo software. In accordance with a thematic analytical approach (Braun & Clarke, 2006), the team read the interview transcripts separately, identifying visible and 'invisible' graduate attributes and their features, then comparing these for each discipline. Where the same attribute was identified in different disciplines, they were compared to identify generic and discipline-specific features.

The analysis of interview data was also used to develop surveys using Qualtrix software, which were sent to approximately 1,000 undergraduate students from those disciplines, recognising that we recruited greater numbers in some (for example, Psychology and Law) compared with others (for example, Dance and Music).

Working across disciplines demanded that our research team question our taken-for-granted assumptions about knowledge and learning. We were often surprised by how learning differed across disciplines and excited by the possibilities we saw for cross-disciplinary fertilisation. What would happen, we wondered, if lawyers were taught the skill of embodied awareness (an important 'invisible' attribute in Dance) before they entered stressful interpersonal situations or gave visual presentations? Or if the skills of empathy developed in Psychology were adapted for Chemistry graduates who might aspire to work in public service?

We immediately observed some salient characteristics of learning attributes while examining the first three disciplines of Psychology, Law and Dance Studies. For example, in Psychology, empathy, which is an often less-visible skill across the disciplines, is considered crucial and assessable. In Law, where one would expect relating, listening and collaborating – empathic intelligence – to be essential, the majority of teaching tends to focus on learning facts and cases. In Dance, students are actively taught the skills of collaboration and teamwork. They learn the importance of giving and taking direction, as both the choreographer, responsible for the conceptual direction and leadership of a project, and the dancer, responsible for working with the propositions the choreographer develops as supportively as possible.

We found attributes that are developed in all six disciplines and others that seemed discipline-specific, but need not be. For example, an attribute that seems discipline-specific, and only relevant in a highly specialised industry, like the awareness of pitch and melody in music, also important for Dance, could well be relevant elsewhere. For example, in many transport and engineering industries, having a well-trained ear would allow a sensitivity to the pitch of machines that might enable one to pick up potential problems with the machinery – and sophisticated awareness of rhythm, sequence, timing and sound quality might work similarly.

Such pedagogical possibilities are vital to *Making the Invisible Visible*. The project involves finding clearer ways to unravel the complex processes whereby ‘invisible’ learning attributes (such as empathy, communication skills or diversity awareness) can be fostered, how they are valued by key stakeholders, and how generic or discipline-specific they are. To represent the data, we used a table developed in our initial meetings to map the identified attributes, which enabled us to interrogate the range of attributes across the first three disciplines we looked at – Law, Dance and Psychology. We focused on four attributes: cultural awareness, critical thinking, social competence and communication/active listening. In particular, we focused on how they were articulated in various learning activities. We chose these four attributes because they were complex and generated much discussion about whether they were visible or ‘invisible’, and generic or discipline-specific. Developing a table (see Table 2 on page 22) thus allowed us to consider visible and ‘invisible’ graduate attributes in their pedagogical context and to determine which attributes were generic and which were not.

The table also helped us understand how attributes varied in their ‘invisibility’ and the implications of that. Once we had established the table, we then extended the range to Music, Chemistry, and English.

We constructed a definition for each of the four attributes, and identified the learning activities through which it became visible, its level of visibility, and the issues it presented to academics in making it visible. Although we uncovered issues with defining the attributes in the disciplines, we used canonical generic definitions of the attributes as a starting point for analysing the data. We considered skills such as critical thinking and communication to be generic, ones that could be easily taught in isolation, observed and assessed, and for which relatively unproblematic definitions exist. We defined critical thinking as reflective reasoning that was self-corrective, criterion-based and contextual (after Ennis, 1987; Lipman, 1987), and communication/active listening as endeavouring to understand and acknowledge the other’s point-of-view (after Rogers & Farson, 1957). Because cultural awareness and social competence were complicated skills to define, and more difficult to teach, we required more complex definitions. We defined cultural awareness as awareness of the influence of culture in communication (Tomalin & Stempleski, 2013), and social competence as the skills that make for effective social interaction (Rose-Krasnor, 1997).

### *Critical thinking*

As we started to tabulate the data, several features stood out. Firstly, some of the attributes became visible in the learning activities across the three disciplines, but, although we considered them generic, we became aware that they are defined quite differently in each discipline.

Critical thinking is one example. The Law academic spoke about the need for graduates to develop a

“very strong literacy focus: how to read a case, how to brief a case.... [We] teach them how to put information together, so when they come out, they should be able to read information, process information, analyse it and then repackage it...”

The Dance academic said that “some dance training and styles get very caught up in display and spectacle, and it’s all about show”, whereas

“in a university context, we are looking for meaning and how do we construct significance and what is the interpretation; we have got to be able to talk about it. [...] How do they choose their music? Are they listening critically or are they just taking something that someone has given them?”



**Table 2: Graduate attributes across the disciplines**

<b>Attribute (and level of visibility)</b>	<b>Definition</b>	<b>Learning activities</b>	<b>Issues</b>
<p><b>Critical thinking</b></p> <p>Usually visible (and assessed)</p>	<p>Ennis (1987, p.10): “reasonable reflective thinking focused on deciding what to believe or do”, or, more specifically “the ability to clarify, to seek and judge well the basis for a view”</p> <p>Lipman (1987, pp. 5-6)</p> <ul style="list-style-type: none"> <li>• “self-corrective thinking”</li> <li>• “thinking with criteria” (of measurement, classification or judgement, and meta-criteria like relevance or reliability)</li> <li>• “thinking that is sensitive to context”</li> </ul>	<p><i>In Psychology, Law and Dance disciplines</i> the main learning activity was critical analysis</p> <p><i>In Psychology</i> critical use of research was another learning activity</p>	<p>How critical thinking is to be defined and assessed for each discipline.</p> <p>Levels of what critical thinking means: prescribed versus innovative.</p>
<p><b>Communication/ Active listening</b></p> <p>Visible or invisible (more or less challenging to assess)</p>	<p>Rogers and Farson (1957):</p> <ul style="list-style-type: none"> <li>• “grasp[ing], from [the speaker’s] point of view, just what it is he [or she] is communicating to us”</li> <li>• “convey[ing] to the speaker that we are seeing things from his [or her] point of view”</li> </ul>	<p><i>In Psychology, Law and Dance disciplines</i> written communication was the main learning activity</p> <p><i>Law</i> also had oral communication</p> <p><i>Psychology</i> also had critical listening</p>	<p>How communication is defined and assessed for each discipline, especially in group work.</p> <p>How to communicate versus what you communicate.</p>
<p><b>Cultural awareness</b></p> <p>Largely invisible (not usually assessed)</p>	<p>Tomalin and Stempleski (2013, p. 5): “sensitivity to the impact of culturally- induced behaviour on language use and communication”, namely,</p>	<p><i>Law</i> had role play and reflective essays as the main learning activities</p>	<p>How different disciplines, professions and students define and value cultural diversity.</p>

	<ul style="list-style-type: none"> <li>• “awareness of one’s own culturally-induced behaviour”</li> <li>• “awareness of the culturally-induced behaviour of others”</li> <li>• “ability to explain one’s own cultural standpoint”</li> </ul>	<p><i>Psychology</i> involved discussion of how different individuals or groups might understand a single experience</p> <p><i>Dance Studies</i> used creative tasks in choreography</p>	Deciding when inappropriate to assess.
<p><b>Social competence</b></p> <p>Often invisible (occasionally assessed through group work)</p>	<p>Rose-Krasnor (1997): Individual and interpersonal “effectiveness in social interaction” (p. 111), “which manifests itself in a range of skills:</p> <ul style="list-style-type: none"> <li>• perspective taking</li> <li>• communication <ul style="list-style-type: none"> <li>• empathy</li> </ul> </li> <li>• affect regulation</li> <li>• social problem-solving” (p. 123)</li> </ul>	<p><i>Law</i> used reflective essays was the main learning activity</p> <p><i>Dance Studies</i> used groupwork in choreography, wherein cooperation, flexibility and compromise are assessed</p> <p><i>Psychology</i> used reflective essays, also group work to reflect on different social situations</p>	<p>How groupwork is to be assessed</p> <p>How ‘passive’ participation is to be assessed.</p> <p>Deciding when inappropriate to assess.</p>

For the Psychology academic, it was fundamental for a graduate to “think about the world and [recognise] that other people might think about the world differently because of their development”, which required

“learning critical thinking, so they are able to do the process of approaching anything you [sic] come across, any piece of information and being able to stop and reflect and think: ‘does that make sense, does that fit with how everyone else would say it, or how I think about the issue?’”

In each case, critical thinking provides the graduate with clarity, relevance, depth, breadth and sound evidence to be able to make the right professional decisions. But, at the same time, the divergence can be seen to reflect Jones’ (2009a, 2009b) claim that even the most ‘generic’ skill carries strong disciplinary nuance.

Secondly, the attributes varied in their visibility. Academics from all three disciplines agreed that critical thinking often became visible in critical analysis, where it was thus assessable. It was also noted that, in its visible form, critical thinking can sometimes be superficial; students can score highly on critical thinking in assessments by simply translating lecture notes into essay paragraphs, choosing appropriate quotations and writing succinctly. What was interesting to us was that critical thinking can also occur invisibly in the form of problem-solving and decision-making (Green et al., 2009) that can be assessed only indirectly, and genuine critical thinking might take the form of critique of established knowledge in the discipline, which may not be welcomed in assessments – in which case, such thinking may actually undermine a students’ examination grade.

Furthermore, it is treated differently in each discipline: in Law, critical thinking is likely to be about analysing and evaluating an argument; in Dance, it is often about making decisions with an awareness of both creative and academic contexts; and in Psychology, it is supplemented by the critical use of research, which went unremarked in the other disciplines, perhaps because it is regarded as a senior undergraduate or postgraduate practice. Critical thinking is complex. Our discussions highlighted the need to measure *development* of the attribute over time, which involves multiple assessments, yet provides clearer feedback on the learning processes that foster attributes. This raises the question of whether a student's development could be more holistically tracked. Additionally, how are suitable activities identified that are transferable into professional practice? We discussed the value of essays and whether graduates will continue to write these in their profession.

### ***Communication/active listening***

Our team debated how communication/active listening could be defined and whether it was visible or 'invisible'. Although it is generally considered a generic attribute, communication and listening expectations differ widely in the practice of each discipline. The dancer learns how "movement creates meaning and feeling ... how they would understand that to communicate to another person, either through performance, through teaching, or through choreography", and then "to test it with an audience: are they understanding and are they feeling what I am feeling, and if they are not, then it is not working". In Psychology, communication is active listening, "learn[ing] from listening to other people" and "contributing, not maybe verbally, but still contributing with their attention". In Law, both aural and oral skills are crucial for communication because a lawyer must be able to read information and provide an

“oral argument by way of letters to clients, or opinions to senior partners”, but at the same time develop aural skills “because you can’t do anything as a practitioner if you don’t understand what your client’s problem is”.

### ***Cultural awareness and Social competence***

We deliberated at length about these two attributes and their visibility, but through the process of tabulating them we discovered that some attributes varied considerably in their visibility: from often visible, as seen with critical thinking and communication, to largely invisible, as we found with cultural awareness and social competence. These last two prompted more discussion about how they were interpreted in our disciplines: Were they actively taught? Were they assessed? How could they be assessed?

One Law academic talked about the difficulty of teaching cultural awareness and will often model what is expected. She used the example of etiquette with family group conferences in youth justice cases:

“I ask [the students] ‘what’s the first thing you do?’ and they say, ‘get out there and ask them what the problem is,’ and I go ‘really?’ And I said, ‘you won’t get anything unless you offer them a cup of tea and biscuit.’ They think this is almost flippant or frivolous. We don’t assess for that, so I will model it and teach it...”

The Psychology academic talked about the inappropriateness of assessing how students' cultural self-awareness develops through a course, whether their

“personal views on other people had changed over the course and how they themselves had changed over the course. I don't mean specific other people, but other cultures, other diverse groups, other minorities and across other domains. I don't know how you can assess that.”

And in Dance, the academic described the difficulty of assessing the process of learning in Dance, when it is always the product that gets assessed:

“We are working to a theatrical paradigm, where you get on-stage, under lights, and this is what you have created, and you are committed to that dance, and I am telling the student ‘there is no judgement; there is no right or wrong; no better or worse way of doing it. You just follow your impulse, whatever comes, whatever emerges,’ and you do not want to evaluate the quality of what comes out; anything is valid in that situation.”

Both cultural awareness and social competence, we noted, require variable and highly nuanced assessments by other people of another person's qualities. What is acceptable in one discipline, workplace or cultural context is likely to vary, making both attributes much harder to benchmark for inclusion in a transcript or assessment rubric. This made us realise that, as well as identifying viable ways to develop and potentially assess ‘invisible’ attributes, we should consider how they could be evaluated.

We discussed the ethical dimensions of evaluation and whether there might be assessment methods that could encourage development in ways that meet the needs of students and employers, and perhaps even government and wider society.

Tabulating the first stages of data and reflecting on our process enabled us to carefully consider issues underpinning the analysis and understanding visible and 'invisible' graduate attributes within and across disciplines. It raised questions about how we determine an attribute's visibility and 'invisibility', and of the multiple meanings and expectations a single attribute will carry. The 'invisible' attributes we proffered were aspirational, but nonetheless ones that often occur in the graduate profiles of universities. Although important for employability, these attributes go beyond university and employment into ethical behaviour and individual development, relating to an individual as a person (Raybould & Sheedy, 2005).

While we discovered that some attributes are generic, we would argue that the design of strategies for developing, and assessing, attributes must recognise disciplinary differences, not least so that the attributes meet the needs of all stakeholders. Some attributes might be better left 'invisible' because they may be difficult to teach, and even more difficult, even damaging, to assess in the tertiary context. Therefore, we bear in mind that identifying such attributes and whether they are discipline-specific is important.

Finding a consensus as to how 'invisible' attributes might be interpreted was not our objective. We aimed to alert those designing strategies to develop and assess attributes to the fact that failure to recognise disciplinary differences has serious implications.

Consulting with all stakeholders (disciplinary academics, students, employers), so that the attributes can be interpreted in the context of the discipline, will help achieve the best graduate outcomes. It should ensure that graduates will not only develop the desired attributes, but will also be able to articulate how they have developed them in relation to specific learning environments and disciplinary settings.



## 5. DEVELOPING 'SEEN': A CONCEPTUAL FRAMEWORK

As we undertook further thematic analysis, it became apparent that the generalised concept of each 'invisible' attribute was more layered than we had thought. Different capabilities were emerging, from simply being able to identify examples of an 'invisible' attribute at one end to being able to translate the practise of that 'invisible' attribute from the classroom to the workplace, or other situations, at the other. Based on this, we developed the overarching conceptual framework we came to call the SEEN framework, a conceptual framework for identifying, teaching and evidencing 'invisible' attributes.

SEEN represents four capabilities – Specify, Explain, Embed and Nudge – organised according to level of complexity. The first two capabilities relate to identifying and defining a particular attribute, while 'embed' describes the student's ability to use the attribute in the classroom, and 'nudge' to translate it to other contexts. Each SEEN capability comprises three stages: a learning objective; teaching/learning activities; and observable evidence. While it may be impossible, or inappropriate to summatively assess a specific 'invisible' attribute for various reasons, the framework provides an opportunity to make the 'invisible' attribute visible to the student and others.

### *Specify*

The first capability, 'Specify', requires a student to identify and name a particular 'invisible' attribute and a situation when they observe it. Alternatively, given a scenario, students identify the 'invisible' attribute(s) that would be required to succeed in that specific situation.

This involves describing where and when they might observe the attribute in the relevant discipline, or in their own lives. For example, in Law, cultural and social diversity awareness may play an important part in the future work of graduates. To develop this awareness, the lecturer might provide examples where a 'generic' approach will not work, as in the following example of a lawyer working with an indigenous youth:

"... the practitioner [came] back and said, 'I was there to represent 14-year old so-and-so, and then all these other people showed up... so what's the first thing you do?' ... I said you won't get anything unless you offer them a cup of tea and biscuit. And they [the students] think it is almost flippant or frivolous, and again we don't assess for that, so I will model it and teach it... that appropriateness or cross-cultural communication."

*[Lecturer, Law: cross-cultural/social awareness]*

Alternatively, the lecturer might ask students to identify situations in their own experience where a specific 'invisible' attribute has been important to them. For employers, during a job interview a candidate might be asked to outline their own strengths, or what are considered important aspects of the role, requiring evidence of their ability to specify an 'invisible' attribute.

For example, the employer for a Dance company believes that where prospective employees can demonstrate curiosity or passion, they are more likely to succeed:

“The more that I work with professionals, the more I am certain that when these behaviours are identified they will have a successful career. And one of the first things is a curious mind... a hunger to learn... a hunger to improve... a hunger to grow.”

*[Employer, Dance: Professionalism and lifelong learning]*

Like all graduate attributes, specifying an ‘invisible’ attribute will be discipline-focused, and examples may well be related to specific cases in the practice of the discipline as a profession. They may also see examples of that ‘invisible’ attribute in parts of their lives outside the classroom, such as their workplace or social situations.

### ***Explain***

Being able to ‘Explain’ an ‘invisible’ attribute is the second capability in the SEEN framework. This involves being able to describe the features of the attribute, and why it is relevant in a given situation. Due to the apparently objective nature of Chemistry, an attribute that is often ‘invisible’ is ‘personal integrity’. And yet, it is an essential part of the development of effective chemists. In this case the learning objective might be to ‘develop professional integrity in research’. The lecturer might then point out important features of integrity in the chemistry context (accurate reporting of results, actively preventing plagiarism, or even deciding not to do certain experiments):

“There have been other cases where I’ve said *that* group might do something but *we* are not going to... we are going to try and get through this and give a good example to other students.”

[*Lecturer, Chemistry: integrity*]

and

“Most weeks at a group meeting we talk about something that has come down to a balance of conscience.”

[*Lecturer, Chemistry: integrity*]

In this case, learning is based around group discussions of what makes something ethical or unethical, and why integrity is important. Evidence that a student can explain the processes and purposes of personal integrity could be evidenced formatively in these discussions, and raising other cases where students might face similar challenges, and how they might be addressed.

For employers, the graduate’s ability to explain and contextualise an ‘invisible’ attribute is vital at the interview stage. For example, a Psychology employer requires potential candidates to explain their communication skills in some detail:

“For me it’s about their ability to communicate, not, and this is a key thing, it’s not about the academic writing, it’s about the very real interface with people who answer back, who have real issues with complaints, who are disgruntled, you know?”

[*Employer, Psychology: Communication*]

In this case, the graduate needs to identify situations where different kinds of communication have been required, what kinds of communication were needed, and maybe even why.

### *Embed*

The capability, 'Embed', refers to how the attribute is enacted in class, moving from description to application. In Psychology where empathy is a key 'invisible' attribute, a teacher might use role play to enable students to develop empathy. Students are then observed through their interactions including what they do, their postures and the use of appropriate language. In another example with Dance, a discipline usually associated with communication through physical movement, though it also includes verbal communication, both active listening and constructive feedback. For this reason, one Dance lecturer facilitates and participates in structured peer feedback sessions:

“we do a critical feedback process where their third comment has to be something affirmative about the piece and then the students ask questions about what they would like feedback on specifically and then I will add my comments as well about how I am seeing it.”

*[Lecturer, Dance – communication and feedback]*

Here the students move from simply knowing that communication is important, to learning how to seek, as well as provide, constructive feedback, supported by the lecturer's own feedback and reinforcement process.

Students' development of this skill is readily evidenced through the style and approach they adopt in providing feedback, or on the types of questions they ask to support further development when given feedback.

Employers are also aware of the importance of embedding or developing 'invisible' attributes in the classroom, and may expect graduate employees to be able to practise these same skills in the workplace. For example, an employer for a university library, who often employs Arts graduates, points out that, despite the focus on solitary studies of texts, employees require experience of group work:

“... they have good examples [of working in teams] from being students, because they work in groups, so that has applications. What role did you play in your group? And that's how you hear that they managed to take over and lead the group.”

*[Employer, English: teamwork, leadership]*

Therefore, embedding of 'invisible' attributes in the classroom is of importance to employers in deciding how well a student may have had facilitated practise in a particular 'invisible' attribute.

### ***Nudge***

The final SEEN capability, 'Nudge', refers to processes whereby attributes are translated beyond the university environment, to work and life settings. Teaching and learning activities might include specific activities that enable students to do so.

Evidence that a student has ‘nudged’ an ‘invisible’ attribute beyond their university experience will include observations (or descriptions) of activities which students demonstrate through active modes of engagement, in social and work contexts. This is often viewed as the domain of employers, rather than of lecturers. However, recent engagement in work-integrated learning allows lecturers to build explicit learning objectives to enable students to ‘nudge’ ‘invisible’ attributes such as professionalism, teamwork, etc., while still studying. In addition, co-curricular activities and work undertaken by students provide opportunities to apply university-developed ‘invisible’ attributes in extended contexts. Even in courses not usually viewed as vocational, students may be encouraged to think about how they will translate to other contexts, as this example, from a humanities lecturer, highlights:

“If I am in a work environment, I have a very good sense of what makes a report a report, what makes a magazine a magazine, what different kinds of things documents can be.” [*Lecturer, English: writing for different audiences*].

The learning objective for such an approach might be: to raise awareness of writing genres in different real-world contexts. In this example, the lecturer creates connections for students to see the parallels between university assignments and professional publications. When students can make these distinctions in their own writing, they evidence their awareness of professional and academic genres, which might also form the basis for portfolio work.

On the other hand, being able to ‘nudge’ an ‘invisible’ attribute may not relate to the workplace at all, but rather to a broader social awareness and consciousness, so they are:

“critical in the sense of ... producing a whole other way of thinking about society, or the world.”

*[Lecturer, Drama and Writing Studies]*

In this way, students gain critical skills which they can bring to the everyday decision-making involved in acting in society.

For employers, a graduate’s ability to transfer and translate ‘invisible’ attributes into the workplace, and keep developing those skills is critical. While ‘invisible’ attributes are expected to develop through classroom experiences, it is also acknowledged that co-curricular and student job roles will play an important part in developing many skills, particularly those relating to communication. For example, an employer from a company providing organic certification for a range of customers from government to farmers, establishes Chemistry knowledge from an applicant’s transcript, and then looks at part-time jobs that the applicant has had:

“generally, ...students have been in the hospitality sector at some stage of their study ... So, what we are looking for there is, okay, how do we think that interaction in that job or in that role will transfer to what they might be doing here? ...We will ask them about that situation, how they found that, how they interact with customers in different situations, the outcomes of that and do



you think it was a good outcome that you handled well? Or what would you do if you had the chance again?"

*[Employer, Chemistry: personal interaction]*

Thus, 'Nudge' provides the final and highest order capability in SEEN, and links students between the facilitated context of the learner-in-the-classroom with the developed yet still developing graduate-in-the-world.

### ***The SEEN Framework as a tool***

When we combine the individual capabilities of the SEEN hierarchy, with the three dimensions of curriculum – learning objectives, teaching/learning activities, and evidence of development – these form a conceptual matrix (see Table 3). This matrix can be used as a tool for students reflecting on their learning of 'invisible' attributes, lecturers mapping or developing curricula, or employers planning for recruitment or development of graduate employees (see Table 4 for an example).

**Table 3: SEEN Framework with explanations for each dimension**

<p><b>Name of attribute (A)</b></p> <p><b>Discipline</b></p>	<p><b>Learning Objective</b></p> <p><i>What a student should be able to do once the attribute is developed</i></p>	<p><b>Teaching/Learning Activities</b></p> <p><i>How the student will be enabled to develop the attribute</i></p>	<p><b>Observable Behaviour</b></p> <p><i>What a student will be able to do who has developed the attribute</i></p>
<p><b>Specify</b></p> <p>Where/when do you see it?</p>	<p>Where would (A) occur in your discipline OR in this situation?</p>	<p>How do teachers develop (A)?</p>	<p>Can students identify an example of (A) in their discipline or in this situation?</p>
<p><b>Explain</b></p> <p>What does it look like?</p>	<p>What are the relevant features of (A)?</p>	<p>How do teachers help learners to understand (A)?</p>	<p>How do students describe (A)?</p>
<p><b>Embed</b></p> <p>How does it appear in class?</p>	<p>How would a student be able to demonstrate (A) in the classroom?</p>	<p>How do teachers help learners to demonstrate (A)?</p>	<p>How do students demonstrate (A) in the classroom?</p>
<p><b>Nudge</b></p> <p>How does this translate beyond the course and class?</p>	<p>How might a student be able to apply (A) outside the classroom?</p>	<p>How do teachers help learners apply (A) outside the classroom?</p>	<p>How might students demonstrate (A) outside the classroom?</p>

**Table 4: SEEN Framework demonstrating Cultural Awareness in Dance Studies**

<b>Name of attribute:</b> Cultural Awareness <b>Discipline:</b> Dance Studies	<b>Learning Objective</b>	<b>Teaching-Learning Activities</b>	<b>Observable Behaviour</b>
<b>Specify</b>	Students will learn that: Cultural awareness occurs in: Dance education Choreography Dance making Project management	Teachers develop students' cultural awareness by: Communicating expectations of cultural difference and sensitivity. Teaching from a range of different cultural points of view and value systems.	Students identify cultural awareness by: Appropriate dance practice which differs in different settings. Articulating diverse values and perceptions operating in creative and education settings.
<b>Explain</b>	Students will learn that: The relevant features of cultural awareness are: Sensitivity to peer and collaborator diversity. Awareness of different choreographic and teaching strategies appropriate for diverse learners.	Teachers help learners to understand cultural awareness by: Explaining, expecting and valuing cultural difference in the classroom.	Students describe different cultures and value systems experienced in their year groups and in dance communities.

<p style="text-align: center;"><b>Embed</b></p>	<p>Students will learn: Inclusivity when working with their classmates. Using culturally appropriate language that reflects understanding of the diverse backgrounds of collaborators.</p>	<p>Teachers help learners to be culturally aware by: Engaging cultural difference as a learning tool.</p>	<p>Students demonstrate cultural awareness in the classroom by: Engaging appropriate language and strategies that are sensitive to cultural difference in their group work and teaching demonstrations. Articulating how exercises could be redeveloped for different settings and students.</p>
<p style="text-align: center;"><b>Nudge</b></p>	<p>Students will learn: Developing dance in diverse communities, or leading creative activities in diverse settings with confidence, sensitivity and respect for difference.</p>	<p>Teachers help learners apply cultural awareness more generally by: Demonstrating cultural sensitivity in their own teaching and creative practice. Discussing how they adapt ideas for diverse communities. Drawing attention to potential adaptations of exercises,</p>	<p>Students might demonstrate cultural awareness outside the classroom by: Approaching dance work in different settings with awareness, sensitivity and respect for cultural difference.  Adapting exercises to make them relevant and</p>

		relevant for teaching in different cultural spaces.	respectful of the values of those they work with.
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## 6. DISCUSSION

During their time at university, students will develop a range of skills, attitudes and knowledge, some of which will be taught and certified, and some more nebulous, but vitally important for the workforce, and adult life more generally. For many students and lecturers these attributes remain 'invisible'. They may not appear in transcripts and may never be directly assessed.

While much research has been done concerning how we can best embed visible attributes in the curriculum (Normand & Anderson, 2017), we argue that the SEEN framework contributes to this field, by focusing on those attributes which, by and large, are treated as either 'aspirational' goals of a university, or as personal qualities of students, rather than attributes which can be actively planned for in learning objectives and learned through classroom activity. The SEEN framework provides a language for students, lecturers and employers to engage in conversation about attributes generally, and 'invisible' attributes in particular, where these may not be conventionally assessed.

Moreover, for lecturers, the framework is a means for identifying ways to incorporate specific activities in their curriculum, and identifying objectives, activities and observable behaviours in other disciplines, which they might use in in their own classrooms. For students, the framework provides a tool for reflection on their learning and, specifically, preparation for workplace interviews. For employers, the framework provides a language to help elicit attributes that prospective employees may have but are unaware of.

It may also be useful for employers when considering the depth or maturity of the interviewee's development of specific attributes. Finally, while the SEEN framework has been developed specifically for 'invisible' attributes, the matrix can be used as a potentially valuable curriculum mapping or design tool, allowing both visible and 'invisible' attributes to be consciously embedded in curricula.

## 7. CONCLUSION

Although the concept of graduate attributes is well known, we often struggle to address those attributes in the affective and non-cognitive domains, what we refer to in this paper as ‘invisible’ attributes. According to Daniels and Brooker (2014), universities need to ensure that students actively reflect on the role and cultivation of all graduate attributes in their learning, so that they “actively participate’ in their identity development throughout their time at university” (p. 74). This requires that students learn about the nature and role of graduate attributes that often go unrecorded; and how they might be developed and evidenced.

The SEEN framework offers a way forward, a tool for unpacking the complex dimensions of ‘invisible’ attributes. It provides a language by which ‘invisible’ attributes can be conceptualised in terms of their observable behaviours, which can then be actively developed, rather than viewed as innate qualities of an individual. The framework also provides a basis for a three-way conversation between students, lecturers and employers so that expectations and evidence can be clarified within and across these groups.

The SEEN framework can be used to identify teaching strategies for developing and comparing pedagogical approaches across different disciplines. It can also be used to explore which ‘invisible’ attributes are observable in different classroom situations and to what extent pedagogies might be transferable across disciplines. In this way, we hope to support students and academics to better meet “workplace demands where employers expect graduates to have a range of skills that go beyond discipline-specific knowledge” (Stracke & Kumar, 2014, p.616).



More importantly, however, we hope to support students in developing the attributes crucial to their future identities for their social good, able to engage critically and constructively with their world beyond the classroom (Donleavy, 2012; Jackson, 2014).

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## APPENDIX A: Outputs arising from the project to date

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