Practice and Evidence of Scholarship of Teaching and Learning in Higher Education
Vol. 10, No. 2, July 2015, pp. 154-177

Graduate Competencies, Employability and Educational Taxonomies: Critique of Intended Learning Outcomes

Simon Paul Atkinson
Learning and Teaching Team
BPP University, UK
SimonAtkinson@bpp.com

Abstract

For universities to remain relevant and competitive in a global market of Higher Apprenticeships and work-based learning provision there will needs to be a much clearer articulation of the benefits accrued by students in their 'graduateness'. A review of 20 UK institutions, 80 undergraduate modules and some 435 individual intended learning outcomes (ILOs) being taken by students in 2014-15 reveals the lack of definition of ILOs in terms of the development of skills attractive to employers. This paper argues that employability skills should be more clearly articulated in the ILOs specified at module level. It also suggests that the development of employability skills at an institutional level requires sustained attention to ensuring transparency in module designs to promote student choice and measurable skills acquisition possible.

Keywords: employability, outcomes, taxonomy domains, learning design

Introduction

With an increasingly serious, and often fractious gaze, on the employability of graduates many institutions are undertaking a review of their programme designs, their engagement with employers and the identity of their graduates. This paper reviews a sizeable number of module specifications, some 80, containing 435 intended learning outcomes (ILOs), taken from a range of disciplines across 20 higher education institutions in the UK for the academic year 2014-15. The purpose of this deliberately broad inquiry was to explore the construction of ILOs using active verbs, across a wide range of disciplines and levels. The intention is to see to what extent the language

being used reflects language of employability and skills. The purpose was not to evaluate the relative skills in authorship of ILOs between institutions or disciplines but rather to explore patterns of precision in the articulation of outcomes in a range of learning domains. The study asks whether a range of clearly articulated domains of learning, supported by an agreed lexicon, would benefit both student choice and their prospects for employment.

Employability: a policy driver for curriculum design

UK employers' associations and central government have placed significant pressure on UK Higher Education Institutions (HEI) to equip graduates with the skills required for employment and workforce preparation. Variously identified as 'key', 'core' and 'transferable' skills, these have centred on those skills identified in the Dearing Report (Dearing, 1997) namely of communication, numeracy, information technology and 'learning how to learn'. To these have been added 'commercial attitudes and understanding' (Hillage & Pollard, 1998) as well as 'self-sufficiency' and self career management. To these can be further added 'digital literacies' as a set of skills necessary to work in increasingly distributed and digitally enabled contexts.

Significant resources are available through government departments, most notably that now known as the Department for Business, Innovation and Skills, and through the UK Higher Education Academy (HEA) and its sponsored 'employability' programmes. This latter source provides a series of useful guides to support institutions' considerations of employability and identifies a number of key factors:

- The perceived inter-connectedness of HEI and the 'national economy' is longstanding;
- Employers recognise subject discipline achievements but deem them insufficient as the basis for recruitment;
- Demonstrable achievements beyond the discipline (such as evidence of 'soft skills') are generally considered important in graduate recruitment;

- 'Employability' refers to the graduates' potential to secure a 'graduate job'; not whether they actually did (something dependent on complex regional economic variants);
- Employability is a concept broader than simply 'core' and 'key' skills and involves complex learning;
- It is too often assumed that 'skills' are transferable across contexts;
- Literature has a tendency to make the implicit assumption that graduates are young people whereas in reality employability is a life-wide endeavour.

(Yorke, 2006)

There is currently no comprehensive model that can be adopted to address the global mobility of 'skills' as represented by university study with local context distorting the issue;

> One size does not fit all institutions, as far as employability is concerned. Contexts, student recruitment patterns, envisaged labour markets and traditions are four variables that influence the embedding of employability in curricula. (Yorke & Learning and Teaching Support Network, 2004, p. 3)

As Yorke makes clear, 'employability' should be interpreted as a broader concept rather than simply identifying 'core' and 'key' skills. Employability is the acquisition of abilities that require their articulation within the discipline context, at a level appropriate to the learner's discipline related abilities at any given point of study. It is simply inadequate to assume that generic 'life skills' can and should be taught in stand-alone modules outside the main programme of study.

There is some confusion both in practice and in the review literature about the nature of 'competencies' and 'employability skills'. The Enhancing Student Employability Co-ordination Team (ESECT), which ran under the auspices of the Higher Education Academy from September 2002 to February 2005, produced a definition of 'employability' now commonly used in Higher Education in the UK:

> a set of achievements – skills, understandings and personal attributes – that

> make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy. (Yorke, 2006, p. 6)

Students seek assurances that the time spent undertaking their degree programme, or professional exams, is time and money well spent. The possibility, if not probability, that having a degree qualification assures the successful graduate positive employment prospects persists as a primary motivation for further study, but employers seek more than a qualification. Indeed, many take for granted that applicants will have academic qualifications, it is their 'graduate skills' that are under close scrutiny. Being able to provide evidence of such 'skills' is what advantages the contemporary graduate, as suggested by employers' apparent preference for part-time students with real work experience (Mason & Hopkin, 2011).

Industry related and occupation related competencies can only be responded to at the school, departmental, or programme level and should be reflected in the intended learning outcomes specified in module and programme documentation. Ideally, these would match or directly relate to established industry or occupational frameworks to aid graduate employment mobility. The United States Department of Labor, Employment and Training Administration identifies a range of industry and occupation specific competency frameworks (Ennis, 2008) and there has been a long history of European Union initiatives (Schomburg, 2007), as well as professional body frameworks. These are potentially necessary for industry accreditation purposes but are a step beyond what is required for an academic programme competency statement (CareerOneStop, 2012).

Much of the work around competencies has centred around three broad categorizations. These categorizations are based around the notion of foundational competencies, industry related competencies, and specific occupation related competencies. This picture is further complicated by cross sector competence frameworks such as those relating to generic leadership skills and entrepreneurial skills, as well as broad sectorial categorizations such as support services or financial services.

Table 1. Three Levels of Competence (derived from Ennis, 2008)

Occupation	• Leadership • Entrepreneurship • Change Management • Human Resources • Project Leadership
Industry	• Health • Finance • Business • Arts
Foundational	• Personal Effectiveness • Academic Competences • Workplace Competences

Foundational competencies are subdivided into three further categorizations, those of personal effectiveness, academic competences, and workplace competences. Much of the business literature and public policy planning documentation deals with personal effectiveness as a broad range of personal characteristics, most of which are effectively ***affective*** skills. These relate to professionalism, initiative, integrity, reliability, interpersonal skills and commitment to personal development. Academic competences might be better defined as both ***cognitive*** and intellectual skills; these include critical skills, analysis and synthesis, and a broad range of communication skills. Already ambiguities emerge between, for example, communication skills defined as an academic competence alongside interpersonal skills deemed to be personal effectiveness.

Table 2. Components mapped against foundational competencies (Ennis, 2008)

Foundational Competencies	**Components**
Personal Effectiveness *(Affective)*	• Professionalism • Integrity • Reliability • Interpersonal Skills • Willingness to Learn
Academic Competencies *(Cognitive/Intellectual)*	• Reading • Writing • Numeracy • Technology • Communication • Critical & Analytic Thinking • Active Learning • Basic Computer Skills
Workplace Competencies *(Psychomotor/Transferable)*	• Teamwork • Adaptability • Creative Thinking • Planning & Organizing • Working with technology & tools • Checking, Examining & Recording • Problem-solving • Decision-making

This ambiguity becomes even more apparent in the third category of foundational competencies, that of 'the workplace', often referred to as practical or transferable skills but should be better regarded as ***psychomotor*** skills. Here, is often cited 'teamwork' (surely an affective domain skill), in addition to the communication skills and interpersonal skills already stated, of adaptability and flexibility of creative thinking, of working with specific tools and technology (clearly a psychomotor domain skill), problem-solving and decision-making (cognitive). Even within the notion of foundational skills as articulated in her detailed review of the literature, Ennis (2008) still allows for considerable overlap and ambiguity.

An extensive range of research has already taken place, with continuing frustration on the part of employers, as to the effectiveness of universities in delivering 'graduate qualities' (Bolden, Gosling, Marturano, & Dennison, 2003; Hayton & Kelley, 2006;

Mitchelmore & Rowley, 2010). There are concerns that the Bologna Process, Europe's collective effort to align higher education systems across the continent and its promotion of the European Quality Framework, has failed in its objective of displacing the primacy of discipline based knowledge and replacing it with skills and abilities recognised by employers (Leoni, 2014). Employers who repeatedly state a preference for graduates with intellectual flexibility and 'workload capacity' (Garrouste & Rodrigues, 2014). There are many objections to this shift in emphasis in higher education towards employability skills, with those who object to the power that employers now appear to have over the shape of the curricula in many instances (Boden & Nedeva, 2010). Whilst others advocate universities make further efforts to ensure graduate employability (Teijeiro, Rungo, & Freire, 2013), this paper aims to review the current use specified intended learning outcomes in module designs to direct learning and teaching towards skills development that make students 'employable'.

I suggest that to neglect the domains of educational objectives pertaining to the psychomotor and affective skills, and the lack of distinction between intellectual skills represented by the cognitive from the subject or knowledge domain, leaves students with a poorer educational experience. A detailed assessment of the ILOs from a random sample of modules in UK higher education institutions serves to illustrate this point.

An Evaluation of UK Undergraduate Module Specifications

This current research explored the current practice in the authoring of intended learning outcomes (ILOs) in the United Kingdom Higher Education sector using existing taught modules in the academic year 2014-2015. The intention was to evaluate the consistency of mapping of ILOs to recognised taxonomies of educational objectives. Rather than employer-led determinations of competencies, the objective is to describe learning outcomes across the four domains of cognitive, affective, psychomotor and knowledge. These can be summarised as

- Cognitive Domain – refers to intellectual skills, the progressive complexity of intellectual deployment of knowledge. Sometimes conflated with a knowledge

dimension I regard this as inaccurate and it should rather be referred to as about 'knowledge application', Based on work by Bloom (1984) later revised by Anderson and Krathwohl (2001);

- Affective Domain – refers to the development of values and the perception of value issues, ranging from simple awareness of 'behaviours' through to the internalisation of personal value systems. Based on original work by Krathwohl and Bloom (1999);
- Psychomotor Domain – refers to progressively complex manual or physical skills. Often undermined by a narrow conceptual of physical tasks but if we widen the definition to include software applications as the use of tools its relevance becomes immediately evident. Based on original work by Dave (1967), revised by Atkinson (2013);
- Knowledge Domain – subject-based accumulation of facts and figures and their inter-relationship. Derived from Anderson's Knowledge Dimension (2001) by Atkinson (2013);

Methodology

The intention of the research was to explore the way in which ILOs were constructed across a wide range of disciplines and levels and to identify the strength of relationships between ILOs and the broader employability agenda. The data gathered could indeed allow for comparisons to be made between disciplines and to the 'effectiveness' of the authorship of ILOs however that is not the purpose here. The data does also allow for analysis in contrasting disciplines and levels however this initial study was concerned with the broader picture.

The dataset used consisted of 435 identifiable ILOs drawn from 80 module specification documents freely available on University websites. A sample of 20 institutional websites was identified using Google through the search terms 'module specifications' or 'module catalogue' alongside in each case the term 'ac.uk'. The size of sample was designed to represent more than 10 per cent of the HE Institutions in England and Wales included in Higher Education Statistics Agency data for the last available year 2012/13. Every other institutional website listed was visited to review the accessibility of module

specifications, ignoring those that required intranet access privileges. At each accessible institutional site, four module specification documents were selected in a random selection process by setting the viewing pane of the web browser to full screen, dividing the list into four equal sections and selecting the 'top' section. Where the module list was divided by subject, Faculty or School, the same process of dividing any listing into four resulted in a randomized selection. Deliberate action was utilized to ensure that one module at Level 4, one at Level 6 and two at Level 5 were selected.

Table 3. UK Higher Education Levels

	Typical undergraduate year	**Exit Award**	**European Quality Framework**
Level 4	First Year	University Certificate	
Level 5	Second Year	University Diploma/ Foundation Degree	Short Cycle
Level 6	Third Year	University Degree	First Cycle

A spreadsheet was built identifying the URL accessed, the institution, the course identifier, the level, credit weighting (refer to www.seec.org.uk for an explanation of UK credit), and the subject area (usually delivery departments subsequently clustered by name by the author). The resulting discipline spread was as follows;

Table 4. Modules identified by discipline and level of study

Subject Area	**Level 4**	**Level 5**	**Level 6**
Sciences	6	9	8
Arts	3	2	2
Health	0	1	4
Humanities	5	4	1
Business	2	3	0
Social Science	5	18	6
Totals	21	37	22

Having identified the intended learning outcomes from each module specification, it was then necessary to identify whether these had been differentiated according to domains of educational objectives, knowledge and understanding, intellectual skills (cognitive), professional and practical skills (affective), and transferable skills (psychomotor). Where no differentiation occurred this was noted. Each learning outcome was recorded against any differentiation and the active verb or verbs, where used, were identified. A note was also made if an ILO had no definable active verb associated with it as 'no verbs', or had multiple verbs in a single ILO where these were noted as 'compound'. There was a final category described as 'not classifiable'. These were ILO with indistinct phrases such as 'to know', 'to demonstrate' or 'be aware' which are difficult to assess without significant contextualisation. Examples as 'non classifiable' ILOs from the dataset include:

- Begin to develop knowledge and skills of the use of effects within the TV/film industry (Arts, Level 4, ILO86)
- Be aware of the concepts underlying risk and return (Business, Level 5, ILO268))
- Give an oral presentation of their work (Sciences, Level 6, ILO421)

The defense often given for such poorly structured ILOs is that 'if you understand the context you'd understand it'. Regardless, we can consider these as difficult to define in terms of the level of skills required and therefore to assess appropriately.

Despite the guidance provided to module designers with reference to the categorisations of ILOs and the desire of central government to ensure students and parents are able to compare 'like-with-like' modules, the range of language used to categorise ILOs within the specification documentation is dauntingly large. A total of 435 ILOs were documented and a single module had no discernable ILOs.

Table 5. Terminology used in origination categorisation of ILOs

Terminology Used to Categorise ILOs within Specification Documentation	**Instances**
Abilities and Skills	4
Abilities	8
CK /CKTP / CT/ CTP	7
Cognitive/Analytical	4
Computing-related Abilities	8
Intellectual skills	9
Intellectual, practical, affective and transferable skills	12
Intended Knowledge Outcomes	11
Intended Skill Outcomes	18
Knowledge & Understanding	46
PPT & Language Skills	1
Professional and practical skills	7
Subject Knowledge	6
Subject Practical Skills	1
Subject-based practical/professional skills	7
Subject-Specific Cognitive Skills	2
Subject-Specific Practical and Professional Skills	2
Subject-Specific Skills	13
Transferable (key) skills	15
Personal Transferable Skills	5
ND – No differentiation	250
Totals	**435**

The number of ILOs without any differentiation (250) represents more than 57 per cent, and the rather weak categorization of ‘Knowledge and Understanding’ represents the next larger portion (46) at 10.5 per cent. The category referred to by a combination of letters of C, K, T and P is inferred to mean C as Cognitive, K as Knowledge, T as Transferable and P as Practical or Psychomotor.

Analysis

The research then required me to attribute the ILOs, where active verbs were present, into one the four domains of educational objectives. Attribution of ILOs to specific domains was based entirely on the verbs used with no reference to any previous categorization given in **Table 5**. This used the four domains as defined below in

Table 6 based on work by Anderson and Krathwohl (2001), Krathwohl (1999) and Dave (1967) as well as original work by Atkinson (2013).

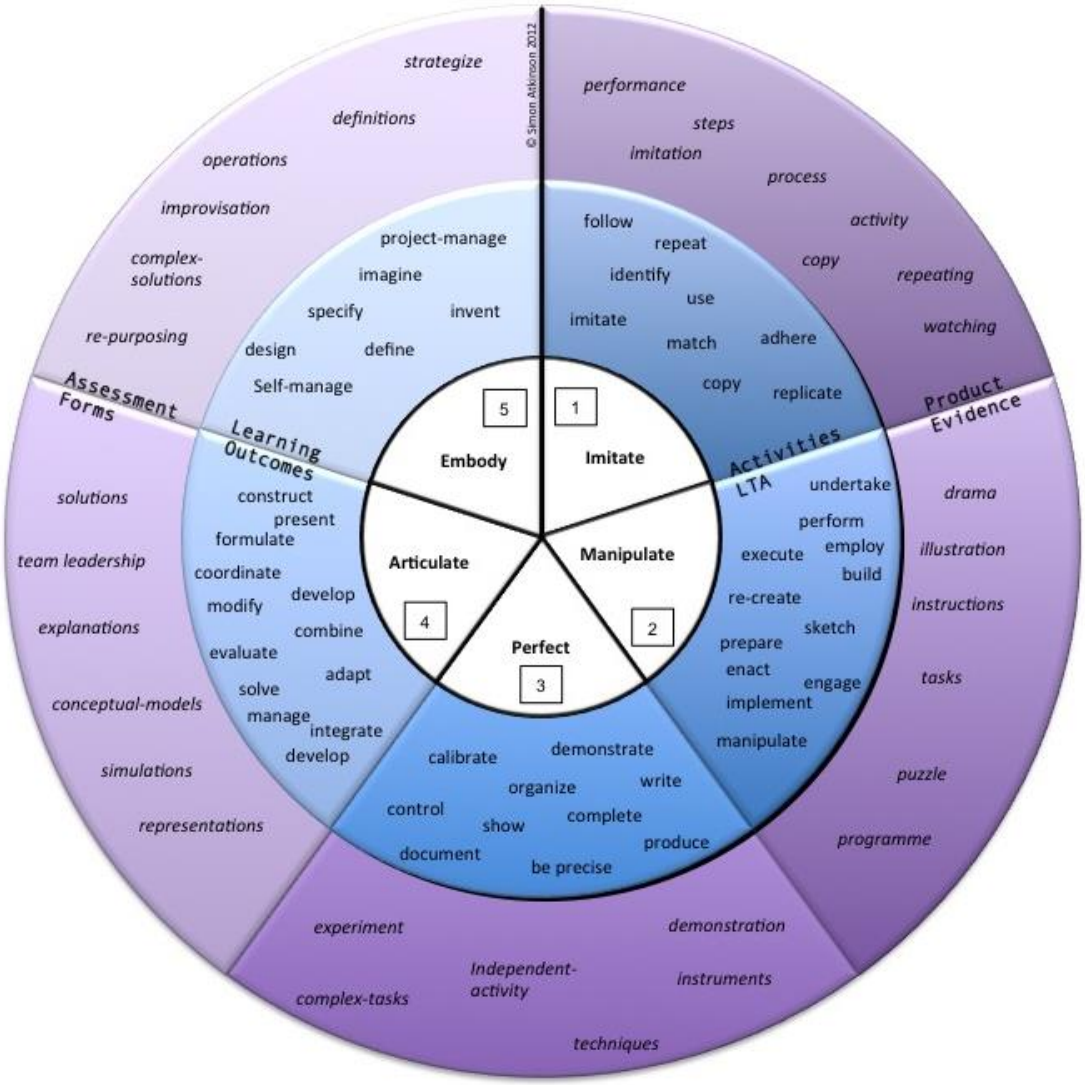
Table 6. Top-level or 'proto-verbs' for four domains of educational objectives (Atkinson, 2013)

Domains	Domain Elements
Affective (Krathwohl et al., 1999)	1) Receive – ability to learn from others. 2) Respond – ability to participate responsibly, respectfully and actively as appropriate to the context. 3) Value – ability to associate personal and collective values with contextual experience and express value judgments. 4) Organize – ability to structure, prioritize and reconcile personal and others' value systems. 5) Internalize – ability to articulate one's own values and belief systems and operate consistently within them
Cognitive (Anderson & Krathwohl, 2001)	1) Remember & Understand – ability to recognise information and comprehend it and to recall and restate said information. 2) Apply – ability to apply factual information and present theories, models and structures to real world contexts and problems. 3) Analyze – ability to construct complex relationships from single factual elements, reconstruct relationships and assess needs. 4) Evaluate – ability to make complex judgments about the nature of context, information and processes to establish new conclusions not represented in the original information. 5) Synthesize – ability to create new representations of knowledge structures, combining complex assemblages of information in original contexts
Knowledge (Atkinson, 2013)	1) Specify – ability to locate, identity and recognise factual knowledge, dates, terminology, artefacts (audio and visual) required of a given discipline domain. 2) Contextualize – ability to place specific knowledge within appropriate discipline relationships, classifications, taxonomies and categorizations.

	3) Conceptualize – ability to articulate relationships between knowledge contexts and to work with models, visualisations, theories and structures that relate between contexts or within contexts. 4) Process – ability to utilise subject or discipline language and actions to specify, contextualise and conceptualise existing and new knowledge. 5) Abstract – ability to recognise and process abstract, unseen or unspecified knowledge, and articulate knowledge origination, including meta-cognition.
Psychomotor (Dave, 1967)	1) Imitate – ability to copy, replicate the actions of others following observations. 2) Manipulate – ability to repeat or reproduce actions to prescribed standard from memory or instructions. 3) Perfect – ability to perform actions with expertise and without interventions and the ability to demonstrate and explain actions to others. 4) Articulate – ability to adapt existing psychomotor skills in a non-standard way, in different contexts, using alternative tools and instruments to satisfy need. 5) Embody – ability to perform actions in an automatic, intuitive or unconscious way appropriate to the context.

Each of these domains has been developed as a 'taxonomy circle', adopting active verb language and building a list of appropriate verbs (http://wp.me/PuKjE-bb). This new visualisation has also allowed for greater flexibility on deciding which verbs should be used, allowing the module designer to recognise that the verb used might be at a higher, or lower, level than that intended and so could search for an alternative. The circular representation has also allowed the development of an outer circle, which provides an emerging collection of evidence that might be appropriate, creating assessable elements appropriate to that domain. One of the four domains represented in this form, the psychomotor, is illustrated here as **Figure 1**;

Figure 1. Taxonomy Circle for Psychomotor Domain
Atkinson (2013) after Dave (1967)



Using these comprehensive lists of verbs, which make up each of the four domain's taxonomies, it has proved possible to assign each ILO to a specific domain. This is illustrated in the following examples;

Table 7. Examples of attribution of ILO to domains

Original Categorization	ILO	Domain Attribution
Knowledge & Understanding	Suggest the appropriate use of basic site assessment techniques, sampling, excavation and excavation recording strategies (Social Science, Level 4, ILO16)	Cognitive
Transferable (key) skills	Develop the confidence to express and defend ideas (Social Science, Level 5, ILO135)	Affective
Computing-related Abilities	Use editing and browsing tools to create, execute and modify programs with visual interfaces (Sciences, Level 4, ILO70)	Psychomotor
None	Describe the major sources of contamination of the environment and place these in the context of past and present human activities (Sciences, Level 6, ILO374)	Knowledge

Following this attribution exercise on the entire dataset of individual ILOs, the results were as follows;

Table 8. Post-analysis attribution of ILOs to Domains of Educational Objectives

	Level 4	Level 5	Level 6	Total
Knowledge (Subject Knowledge)	14	5	11	30
Cognitive (Intellectual Skills)	46	91	61	198
Affective (Professional Skills)	1	4	1	6
Psychomotor (Practical/Transferable Skills)	12	18	13	43
No Verbs	35	32	27	94
Not classifiable	23	30	11	64
Totals	**131**	**180**	**125**	**435**

The data in table 8, which describe the post-analysis attribution of ILOs to domains of educational objectives, were striking. The percentage of ILOs which are poorly

structured was surprising given the weight of existing practice guidance and encouragement from the UK Higher Education Academy and the UK Quality Assurance Agency (QAA, 2006). Some 94 individual ILOs, representing 21.6 per cent of the sample were not formed in a manner which enabled an active verb to be discernable. A further 64 ILOs, 14.7 per cent of the sample, did not contain phrasing that allowed them to be identified as belonging to any one of the four domains. This meant that in total only 276 ILOs, 64 per cent of the dataset could be deemed 'well-structured' and duly classified.

A significant 45.4 per cent of ILOs were attributed to the cognitive domain, 9.8 per cent to the psychomotor domain, 6.8 per cent to knowledge domain and a mere 1.4 per cent to the affective domain. The small proportion attributable to the affective domain, those referring to the development of values and the perception of values, including professionalism, ethics, inter-cultural sensitivity, and diversity issues, is worthy of note. Despite the stress placed on employment-ready priorities within programmes and modules in higher education, these skills appear to be rarely recognised within the learning and teaching practices reflected in ILOs examined. As a consequence, it proves difficult for students to extract, from their learning experience within modules, the tangible skill development required of them as future employees.

There is an over reliance by academic leaders on the cognitive domain most commonly associated at a lower level with 'knowing and understanding' and at a higher level as 'thinking and intellectual skills'. Many of these ILOs are either a statement of curricula content, such as:

> *By critically evaluating the role of biography in ancient culture and as a genre in modern culture for the representation of the past (Humanities, Level 4, ILO 117)*

Or remain firmly contextualised within the discipline making it difficult to extract the transferable skill component, such as:

> *Explain the origins and evolution of the sports business (Business, level 4, ILO 26).*

Desigining Employability into Programmes and Courses

Not everyone agrees that ILOs are effective, and a useful critique from Hussey and Smith is well worth reading (Hussey & Smith, 2002); however, I believe the design of intended learning outcomes for modules and programmes will become a strategic priority as students will increasingly demand to see programmes of study that contain identifiable and tangible outcomes that enable them to produce demonstrable evidence that they can 'take-away'. At the centre of the students' conscious learning experience should be transparent ILOs that incorporate the affective (professional values and attitudes) and psychomotor (transferable and physical skills), both grounded in a discipline context (knowledge). All the students' learning should be discernibly related to the ILOs. Students should be able to identify the skills they are intended to develop.

The suggestion is that a reconceptualisation of the foundational competencies so beloved of employers and professional bodies can, and should with some minor modifications, be mapped with relative ease onto the four domains of educational objectives as seen in **Table 9**.

Table 9. Mapping of foundational competencies after Ennis (2008) against domains of educational objectives.

Foundational Competencies	Personal Effectiveness	Academic Competencies		Workplace Competencies
Components	Professionalism Integrity Reliability Interpersonal Skills Willingness to Learn Teamwork Adaptability Cultural competency	Critical & Analytic Thinking Active Learning Creative Thinking Checking, Examining & Recording Problem-solving Decision-making	Reading Writing Numeracy Planning & Organizing	Computer Skills Working with technology & tools Practical skills

Domains	Affective: perception of values, feelings and attitudes	Cognitive: refers to 'knowledge structures' in cognition and the progressively complex use of knowledge artefacts	Knowledge: a reinterpretation of Anderson and Krathwohl's Knowledge Dimension intended to represent the epistemological dimension to knowing	Psychomotor: refers to progressively complex manual or physical skills

By using lists of verbs suitable for progressively complex learning situations (Atkinson, 2013), module authors can learn to utilise the full range of domains of educational objectives to support their learners. How many Intended Learning Outcomes (ILOs) one designs into a module or a programme level specification has to depend on the scope of the module itself.

For the purpose of this reflection let me take a single module, worth 15 credits. In the UK context, this would frequently represent one-eighth of a stage of undergraduate degree study; there being three stages each representing 120 credits. Again, in the UK context there is a strong notion of progression in higher order thinking skills between the first stage of undergraduate study (Level 4) and the third and final stage (Level 6). This progression is articulated in generic guidance that captures much of this ILO debate and in subject specific guidance drawing on the discipline communities to create 'benchmarks' for what be expected to be in any named award (www.qaa.ac.uk). Level 5 would represent the second stage of undergraduate study in the UK context, the equivalent of an exit point for a Higher National Diploma or a Foundation Degree, the European Qualifications Framework Level 5 and within the EHEA (Bologna) sometimes referred to as a 'Short Cycle' award. My example then is for a 15-credit module at level 5. The UK quality assurance agency does not specify periods of study for credit, but sector norms talk in terms of notional study hours and it is perhaps helpful therefore to think of 15 credits as 150 notional study hours, 30 credits as 300 notional study hours and so on.

The actual balance between the domains in terms of how many Intended Learning Outcomes one might assign to them in the context of a 15 credit module will depend on the context of the module, its mode and its programme context. One might reasonably

expect to see some differences in the balance of ILOs in modules in different contexts, as illustrated below.

Table 10. Examples of Domain variations in number of ILOs depending of learning context

Context (Level 5 / 15 Credits)	University class-taught	Work-based	Practice/Laboratory-based
Domains			
Knowledge & Understanding (knowledge)	2	2	2
Intellectual Skills (cognitive)	4	2	2
Professional Skills (affective)	2	3	2
Transferable Skills (psychomotor)	2	3	4

In this example, each module has ten Intended Learning Outcomes but the emphasis within the module will change. Whilst it may be appropriate to stress intellectual skills (analysis, synthesis, evaluation) in a classroom based political science course, for example, hence more cognitive outcomes are stated, one might expect to see transferable skills (often described as practical, tactile or technical skills), such as manipulation, articulation and naturalisation of technical proficiency, stressed in a technical lab based course, and so we see more psychomotor outcomes appear here.

Whilst many institutions limit the number of ILOs depending on the credit weighting of modules my personal preference is to ensure all appropriate skills are identified regardless of the resultant number of ILOs. Whilst it is true that best practice suggests all ILOs should be assessed I see no reason why a single assessment cannot be deemed to assess ILOs drawn from different domains.

All too often, Higher Education stresses the cognitive, being over reliant perhaps on Bloom's taxonomy and related work, and neglects the affective and psychomotor domains whilst compounding subject knowledge as cognitive activity. This has several consequences, not least that it relegates anything that is not seen as 'intellectual' to a lower order of skills despite the fact that employers and students recognise and demand the need for broader skills (Mason, Williams, & Cranmer, 2006). In doing so, it forces

programme leaders into ‘bolt-on’ skills modules that demand additional institutional and student resource and frequently ill-serve the purpose. No learning design is truly student-centred if it is neglecting other domains of experience (Atkinson, 2011).

Discussion and Further Research

Clearly it cannot be all about the way ILOs are crafted. Employer involvement in course design appears to have significant positive effects on students’ employability awareness (Mason et al., 2006), and the incorporation into programmes of study of work-related opportunities, the sectorial discourse and real-world authentic learning examples will all support wider metacognition. Assessment practices can be modified to ensure that the student experiences authentic, real-world, forms of assessment worthy of incorporation into a portfolio of evidence that can be presented for promotion or selection purposes. Identifying assessment as an integrated learning and teaching process that produces evidence for the learner, and not merely measurement for the teacher, is an important perspective. Integrated support systems through e-learning platforms, that allow the student to build a coherent portfolio of evidence derived from their course, and from extra-curricula activity, will ensure that ownership, and responsibility for the development of complex employability skills is clearly in the realm of the students themselves. Attributes must be embedded into learning activities, measurable at a module level with substantial opportunities for practice and for formal and informal feedback rather than ‘deferred’ to the programme level. (Treleaven & Voola, 2008).

The model advocated here separates the knowledge domain and the intellectual skills, focussing the module designer on the ‘skills’ that will be acquired independent of the subject knowledge acquired. This, along with a focus on the affective and psychomotor skills, provides a framework for a module that is balanced in terms of what the student does, the context in which they do it, and correctly assessed ensures all these intended learning outcomes can be justifiably claimed in the student’s transcript. Indeed, it is not difficult to imagine a student coming to the end of the first stage of their degree, recognising that they have excelled in the psychomotor skills but struggled in the cognitive, and make module choices for future stages either to redress that balance or acknowledge their strengths and adjust choices to reflect their future career path. This

is another reason why thinking about skills at a module level matters as much as at the programme level, student choices within programmes requires the identification of the skill outcomes within modules.

Future research should explore differences in the effectiveness of creating identifiable employability skills with programme structures (the consistency and inter-relatedness of modules within stages and programmes) and within disciplines. This research is a deliberately broad sampling across a wide range of disciplines and modules to explore the way in which ILOs are constructed. A longitudinal review would also allow for the lessons learnt in institutional review cycles to be borne out in refined ILOs and changing institutional agendas.

Conclusions

Achieving graduate attributes, and encouraging students to see the link to long-term employability, is the key for many, if not most, to graduate success and institutional reputation. Placing action-orientated experiential learning strategies, adapted appropriately for discipline and context, at the heart of a constructively aligned learning design (Biggs & Tang, 2007) processes is essential if institutions purporting to represent the best of employment-worthy education are to compete with the mass of increasingly high quality free-courseware available. An internationally agreed set of terminology across partnerships of tertiary providers, distinguishing between personality traits and characteristics, demonstrable and measurable skills and using proven and referenced taxonomies would provide students with credible transferable learning opportunities.

Given the stress on ‘soft-skills’ and practical abilities in employability initiatives, it is surprising that there is not more attention being paid to the affective and psychomotor domains in module creation and this should be addressed. There will be a need to undertake further analysis of programme level coherence and to explore whether certain disciplines are being more effective in others in identification the skills acquisitions student need. There is a strong argument for greater transparency in the relationship between competencies and ILOs. Employers would surely welcome

students who understand that there are competences expected of them, on day one. Students would also welcome the ability to select modules in a combination that fulfills their career ambitions, balancing the skills acquired in a 'practical' module with those in a 'cerebral' one. The ability to consciously build a 'skills profile' is a useful graduate attribute in itself.

References

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing : a revision of Bloom's taxonomy of educational objectives*. New York: Longman.

Atkinson, S. P. (2011). Embodied and Embedded Theory in Practice: The Student-Owned Learning-Engagement (SOLE) Model. *The International Review of Research in Open and Distance Learning*, *12*(2), 1–18.

Atkinson, S. P. (2013). *Taxonomy Circles: Visualizing the possibilities of intended learning outcomes*. London: BPP University College.

Biggs, J., & Tang, C. (2007). *Teaching for Quality Learning at University: What the Student does* (3rd ed.). Buckingham. GB: Open University Press.

Bloom, B. S. (1984). *Taxonomy of Educational Objectives Book 1: Cognitive Domain* (2nd edition). Addison Wesley Publishing Company.

Boden, R., & Nedeva, M. (2010). Employing discourse: universities and graduate "employability." *Journal of Education Policy*, *25*(1), 37–54.

Bolden, R., Gosling, J., Marturano, A., & Dennison, P. (2003). *A Review of Leadership Theory and Comptency Frameworks: Ediited verision of a report for Chase Consulting and the Management Standards Centre* (p. 42). Centre for Leadership Studies: University of Exeter. Retrieved April 2015 from http://www.scribd.com/doc/53237552/20/LEADERSHIP-MODELS-AND-COMPETENCY-FRAMEWORKS

CareerOneStop. (2012). Competency Model Clearinghouse - Using Competency Models. Retrieved March 4, 2012, from http://www.careeronestop.org/COMPETENCYMODEL/learncm.aspx

Dave, R. H. (1967). Psychomotor domain. Presented at the International Conference of Educational Testing, Berlin.

Dearing, R. (1997). *Higher Education in the Learning Society*. London: The National Committee of Inquiry into Higher Education. Retrieved from http://www.leeds.ac.uk/educol/ncihe/

Ennis, M. (2008). *Competency Models: A Review of the Literature and the Role of the Employment and Training Administration (ETA)* (No. ETAOP 2008-13). Washington, D.C.: Department of Labor / Office of Policy Development and Research. Retrieved April 2015 from http://wdr.doleta.gov/research/eta_default.cfm?fuseaction=dsp_resultDetails&pub_id=2395&bas_option=Title&start=1&usrt=&stype=basic&sv=1&criteria=competency%20framework

Garrouste, C. L., & Rodrigues, M. (2014). Employability of young graduates in Europe. *International Journal of Manpower*, *35*(4), 425–447.

Hayton, J. C., & Kelley, D. J. (2006). A competency- based framework for promoting corporate entrepreneurship. *Human Resource Management*, *45*(3), 407–427.

Hillage, J., & Pollard, E. (1998). *Employability: developing a framework for policy analysis* (No. RB85). Department for Education and Employment.

Hussey, T., & Smith, P. (2002). The Trouble with Learning Outcomes. *Active Learning in Higher Education*, *3*(3), 220–233.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1999). *Taxonomy of Educational Objectives Book 2/Affective Domain* (2nd edition). Longman Pub Group.

Leoni, R. (2014). Graduate employability and the development of competencies. The incomplete reform of the “Bologna Process.” *International Journal of Manpower*, *35*(4), 448–469.

Mason, G., & Hopkin, R. (2011). *Employer Perspectives on Part-time Students in UK Higher Education* (BIS Research Paper No. 27). Department for Business, Innovation & Skills.

Mason, G., Williams, G., & Cranmer, S. (2006). *Employability Skills Initiatives in Higher Education: What Effects Do They Have On Graduate Labour Market Outcomes?*. National Institute of Economic and Social Research. Retrieved April 2015 from http://ideas.repec.org/p/nsr/niesrd/280.html

Mitchelmore, S., & Rowley, J. (2010). Entrepreneurial competencies: a literature review and development agenda. *International Journal of Entrepreneurial Behaviour & Research*, *16*(2), 92–111.

QAA. (2006). Guidelines for preparing programme specifications.

Schomburg, H. (2007). The Professional Success of Higher Education Graduates. *European Journal of Education*, *42*(1), 35–57.

Teijeiro, M., Rungo, P., & Freire, M. J. (2013). Graduate competencies and employability: The impact of matching firms' needs and personal attainments. *Economics of Education Review*, *34*, 286–295.

Treleaven, L., & Voola, R. (2008). Integrating the Development of Graduate Attributes Through Constructive Alignment. *Journal of Marketing Education*, *30*(2), 160–173.

Yorke, M. (2006). *Employability and higher education: what it is – what it is not*. York: Higher Education Academy.

Yorke, M., & Learning and Teaching Support Network. (2004). *Embedding employability into the curriculum*. York: Learning and Teaching Support Network.