LEARNING OUTCOMES AND OPPORTUNITIES IN PROPERTY EDUCATION THROUGH CONSTRUCTIVE ALIGNMENT

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ABSTRACT

Active learning, through problem-based learning activities, compels non-academic students to employ a higher level cognitive activity, making them learn more like their academic counterparts. In turn this less passive approach to learning is said to lead to good teaching where students use the level of cognitive processes needed to achieve the intended outcomes that more academic students use spontaneously.

The active approach to learning and teaching is not without criticism, in particular the supportive theory underlines the idea that knowledge is not transmitted to the student, but rather constructed through activity or social interaction. From an objectivist perspective the lack of direction, or control in the activity or social interaction, leads to academic chaos. Similarly, a conflict exists in property education with some stakeholders prescribing the coverage and retention of knowledge as paramount. While other stakeholders underscore the value of students undertaking less formative activities to develop knowledge through their experience of successes and failures.

This research considers the application of learning activities from other disciplines to activate learning in a property program. Constructive alignment is applied as the outcomes based conceptual framework for reflecting on the relevance of existing and emergent problem-based learning activities and assessment.

This paper presents a review of extant research into the learning theory, as it applies to property education practice in Australian property programs. Through systematically defining and then aligning intended learning outcomes, the relevance or otherwise of active learning and teaching activities and assessment is discussed.

Keywords: constructivism, property education, learning outcomes, constructive alignment

INTRODUCTION

This paper commences with a review of research into the learning theory, specifically influenced by the work of Biggs (Biggs 1993, 1999, and Biggs and Tang 2009), as it applies to property education practice in Australian property programs. From the critique of published research, program level intended learning outcomes are defined to guide the reflective practice associated with the research approach.

The remaining part of the research is structured with constructive alignment as a model and framework for reflecting on property education and the opportunities to enhance learning. Biggs and Tang (2009) speak of the constructive alignment, utilised in this manner as 'provid[ing] a conceptual framework for reflecting on questions that need to be answered at critical stages of teaching in general' (Biggs and Tang 2009, p.249). Specifically this research presents learning activities and assessment techniques considered in the context of the program level intended learning outcomes defined for Australian property programs.

LITERATURE REVIEW

How students learn

The study of learning has been the subject of research by psychologists for centuries, during which time theories of human knowledge construction have been shared and contested. While acknowledging the relationship between the cognitive theories of 'Phenomenography' and 'Constructivism' and the focus on student learning, Biggs (1993) criticises much of the earlier research as he considers the approach of the psychologists to be too centred on uncovering a single grand theory. Rather Biggs (1993) and Biggs and Tang (2009) believe learning to be situated and student centric, attributing the advancement of the 'student learning' field of study to Marton and Saljo (1976), and their studies of surface and deep approaches to learning.

According to Marton and Saljo (1976a) there are two distinguishable levels of processing in learning, a deep level and a surface level. In surface level processing the student directs their attention towards learning the knowledge verbatim and, as a result the student is more or less encouraged to employ a rote-learning strategy. Deep level processing sees the student look beyond the text itself toward the material and what is signified (Biggs and Tang 2009). Through testing deep and surface learning Marton and Saljo (1976b) found that deep processing was more conducive to longer term knowledge retention. Further deep approaches to learning are linked to deep learning outcomes (Biggs et al 2001).

Students by their very nature are said to be more inclined to adopt surface or deep learning strategies in higher education (Biggs 1999, Biggs and Tang 2009, and Marton and Saljo 1976b). According to Biggs (1999) students adopting deep approaches to learning virtually teach themselves. The deeper learners are said to be autonomous and compatible with the current and emerging form of higher education (Biggs and Tang 2009).

While a particular student may be more inclined to adopt one learning strategy over another, through experiment Marton and Saljo (1976b) discovered that students will adapt their use of surface or deep strategies depending on the perceived expectation of the teacher or assessor. Specifically they note:

> While many students are apparently capable of using 'deep' or 'surface' strategies, it may be that the current demands of the examination system at school level are interpreted by them as requiring mainly the recall of factual information to the detriment of a deeper level of understanding. (Marton and Saljo 1976b, p. 125)

In sharing the findings of Marton and Saljo, Biggs and Tang (2009) contrast passive lectures and active problem-based learning teaching methods against the cogitative activities for both a stereotypical academic 'Susan' and non-academic 'Robert'. Susan by their definition is academically committed taking interest in her studies and virtually teaching herself. Conversely Robert is said to be at university primarily to obtain the qualification, wanting only to put in sufficient effort to pass (Biggs and Tang 2009).

By moving away from passive lecture based activities to active learning, such as problem-based learning, Biggs and Tang (2009) argue that the non-academics employ a higher level cognitive activity, making Robert learn like Susan. Correspondingly Biggs and Tang (2009) define good teaching as narrowing the gap between the Susans and Roberts of this world as:

> Good teaching is getting most students to use the level of cognitive processes needed to achieve the intended outcomes that more academic students use spontaneously. (Biggs and Tang 2009, p.11)

Teaching theories

Phenomenography and constructivism are theories of teaching well suited to this research and the Biggs and Tang (2009) definition of good teaching. Phenomenography has its origin in clinical psychology, being used by Sonnemann in 1954 and subsequently resurrected by Marton, following his studies with Saljo (Biggs and Tang 2009). In the student learning context, phenomenography refers to the idea that the learner's perspective determines what is learned, not necessarily what the teachers intends should be learnt.

Constructivism, as adopted in this research, underlines the idea that knowledge is not transmitted to the student, but rather constructed through activity or social interaction (Vos et al 2011 and Biggs and Tang 2009). Rather as 'Constructivists' warn, knowledge that is 'transmitted may not be the knowledge that is constructed by the learner' (Jonassen 1991, p.12). The advancement of constructivism may be attributed to Piaget more broadly and practiced in Australian higher education pedagogy through the interpretations of outcomes based learning and teaching (Dearing 1997) and constructive alignment (Biggs and Tang 2009).

The constructivist's view of learning is not without criticism, especially in disciplines where the goal of teaching, or instruction, is considered to relate to the mapping of an external reality onto the leaners, as shared in branches of cognitive psychology and instructional systems technology (Jonassen 1991). Objectivists, or opponents to the constructivists view, may argue that, from the pragmatic perspective 'any [non-objectivist] or [non-realist] position is inoperable, that constructivism is antecedent to academic chaos' (Jonassen 1991, p.12).

In acknowledging the objectivist perspective there is an implied necessity for constructivist teaching and learning practitioners to plan learning activities and make clear the intended outcomes. Biggs and Tang (2009) discuss the first stage of education as 'conceptual change' where teachers and learners share an understanding of the learning intended outcomes and where they are supposed to be going. In their view outcomes based teaching requires a shared understanding, while teaching in the form of 'covering a topic' does not.

Constructive alignment

Essentially the first stage of outcomes based learning and teaching, and the related approach of constructive alignment, first requires the stating of intended learning outcomes for the particular course or program. The learning outcomes are generally defined in statements which describes what and how well students are able to do something, as opposed to prescribing topics or material to cover. Constructive alignment takes the process further with a systematic alignment of teaching/learning activities, and the assessment tasks to the learning outcomes, according to the learning activities (Biggs and Tang 2009).

Property education

As shared with other disciplines, such as cognitive psychology and instructional systems technology (Jonassen 1991), property education may be regarded are sharing philosophical assumptions of objectivism and constructivism. In Australia the connection of the property pedagogy to objectivism may be attributed to the origin of where the teaching of property in higher education first took place. As Hefferan and Ross (2010) and Hefferan (2013) discuss, the tertiary education of property professionals is relatively new practice in Australian universities. Initially focussed on valuation education, property studies largely transferred from technically based education to tertiary (Hefferan and Ross 2010) and, in the process, was subsequently extended to cover the broader property education areas (Newell and Acheampong 2002).

Another influence on education practice and philosophies, in Australian universities property programs is the accrediting institutes, being Australian Property Institute (API) and Royal Institution of Chartered Surveyors (RICS), who nominate minimum standards for either the program or related outcomes. Even with the accreditation influence, property programs offer additional subjects, or courses, that provide what Armitage refers to as a 'richer' experience for students and contribute to variety in the character of degrees offered across Australia (Armitage 2011 cited in Parker 2012).

To determine whether an Australian university property program is considered a Property Degree, and duly accredited, the API prescribes a list of knowledge fields that the majority of courses within the program shall cover (API 2013). With prescribed knowledge fields the institute may be regarded as encouraging the objective transmission of knowledge. Conversely the institute sets broad 'benchmarks' relating to the employability standard of graduates, the qualifications and performance of academic staff and standard of teaching and learning (API 2013). According to Biggs and Tang (2009) such benchmarks may be better achieved through constructivist learning and teaching.

The RICS approach to recognising an academic program focuses on benchmarks relating to the ability of the institution to maintain an acceptable level of performance across nominated categories (Susilawati and Armitage 2011). The RICS benchmarks for academic institutional accreditation are said to define the following categories:

1. *academic standard of entering students as measured by their tertiary entry score or equivalent*

2. *the teaching quality of the program*

3. *the research output performance of the academic staff teaching on the accredited degree*

4. *the employability of the graduates. (Susilawati and Armitage 2011)*

Despite the accrediting institutes making reference to the benchmarking of teaching and programs the onus remains with the university program leaders to provide support for the assertions through materials from surveys and other references and reference tools. Similarly, neither the RICS nor API define learning outcomes as referred to in constructive alignment (Biggs and Tang 2009) or outcomes based learning and teaching (Dearing 1997).

In the absence of a consensus view of intended learning outcomes the application of constructive alignment is complicated. While the specific question of whether the institutes' should define learning outcomes, has not been addressed in published literature the role and desire for further institutional involvement has. When profiling university offerings Susilawati and Armitage (2011) found that there is a variety across the universities in Queensland which offer property degrees in respect of non-specialised knowledge fields. This finding is contested by Parker (2012) as he blames the demanding and prescriptive nature of the API accreditation process for squeezing out specialist property units to accommodate 'generic socialisation units' (Parker 2012, p.4).

Irrespective of the knowledge fields, undergraduate property programs offered at Australian universities are marketed as pathways to careers in the property industry. Deakin relate their program to the profession through promoting:

The course aims to produce graduates prepared for a career in property development, property valuation, management and a wide array of property-related professions. (Deakin 2013)

As preparation for careers, the overviews for property programs in Australia focus on the terms 'real life' and 'real world', especially expressed in terms of the student experiences, assessment and engagement with industry (Deakin 2013, QUT 2013, The University of Queensland 2013, UTS 2013, University of Western Sydney 2013). Deakin (2013) acknowledge this perspective and embed the concept of industry currency and active learning through stating students '…undertake 'real life' education with the focus placed on current issues and relevant topics in the property industry' (Deakin 2013).

In support of Susilawati and Armitage's (2011) position on program diversification there is an inherent flavour emanating from the individual university structure, in particular the direction of the faculty or school leaders. The degree programs provided under a business related school or faculty generally incorporate a link to business knowledge or skills, as per CQUniversity discussing their programs as:

> *... provid[ing] you with knowledge in the fundamental basics of business, as well as specific knowledge in the area of property, giving you the skills to work within a variety of organisations and positions (CQUniversity 2013).*

Where a property program is offered in a non-business faculty or school the themes focus toward societal paradigms. The UNSW property offering, provided through the Faculty of the Built Environment, specifies a focus on people and process management (UNSW 2013). Similarly the Bond program promises to equip graduates 'with a comprehensive knowledge of sustainable development' (Bond 2013), leveraging the benefits of the host faculty of Society and Design.

Property education performance

Newell et al (2010), through analysing student feedback questionnaires from seven Australian universities, conclude that initiatives notably improved course content and structure, course delivery and assessment, have resulted in an enhanced learning experience for property students. On the contrary, in their research findings, students rate the quality of property teaching and overall satisfaction below their peers in the related disciplines (accounting, building, business, economics, law, and planning) for the ten years leading to 2009. Only planning students recorded a lower average student satisfaction result over the extended 16 year period (commencing 1994) albeit the level improved at a rate faster than property to show higher results in all shorter time period studies.

The Newell et al (2010) study does not purport to be conclusive or provide a definitive perspective on the quality of the property programs across Australia. As addressed in the published research the quality of a property program is viewed differently by the various stakeholders whether considered as students, alumni (graduates), academics (faculty) and employers (Baxter 2007 and Tu et al 2009). The perspectives of property education performance are likely to further diversify if the stakeholder group is expanded to include accrediting bodies (Hefferan and Ross 2010) and the public (Boyd 2005).

A further contestable perspective relates to whether or not the satisfaction of any nominated stakeholder is a measure of good teaching. Warren (2013) addresses his view in respect of a perceived over reliance on student satisfaction surveys in higher education performance measurement quoting Professor Mary Beards transcript recorded with the British Broadcasting Corporation (BBC 2012). Professor Beard asserts that, at times, there is a disconnection between the satisfaction recorded by a student and the quality of education provided, and development of the student in saying:

> *…dissatisfaction and discomfort have their own, important, role to play in a good university education. We're aiming to push our students to think differently, to move out of their intellectual comfort zone, to read and discuss texts that are almost too hard for them to manage. It is, and it's meant to be, destabilizing (BBC 2012).*

While further debate on these matters ensues in property and broader education research, the Biggs and Tang (2009) perspective of good teaching, as 'getting most students to use the level of cognitive processes needed to achieve the intended outcomes that more academic students use spontaneously' (Biggs and Tang 2009, p.11), presents a foundation to advance property education.

The advancement of property education is by no means a novel consideration in published research. With research supporting 40 years of property teaching at Australian universities there may be a rich history and even a culture supporting the way property is taught today. The literary journey is evident in the *Pacific Rim Real Estate Society* journal and conference proceedings which feature a permanent property education stream. Similarly the Emerald Groups published journals consistently feature articles on property education. Within these publications the body of current published research regarding property pedagogy including Boyd (2010), Hefferan and Ross (2010), Blake and Susilawati (2009), and Page (2008) address the changing teaching landscape. Similarly change, and the skill bases required by future property professionals, has been the focus of a national survey undertaken by the Australian Property Institute (API 2010) that sought to better inform and prepare accredited program leaders.

The role of research in advancing property education is evident in property research (Newell et al 2010, Hefferan and Ross 2010, and Boyd 2010) and even considered undervalued or underrepresented by some (Boydell 2007). Conversely property education research may be regarded as practical, or problem-based, rather than philosophically deep. Rather connections with theories from natural and social sciences, as evidenced in the broader studies of education and other disciplines are not made in the design or evaluation of learning activities. Baxter (2007) addresses the disconnection of property education research and the body of knowledge on tertiary education and learning from other disciplines through his assertion:

> *Curiously most of the literature on property education seems to lie within a vacuum, without the critical cross-referencing to the mainstream tertiary education norms or pedagogy that might otherwise be expected (Baxter 2007, pp.447-448).*

The absence of reference to theories from natural or social sciences and clear connections with mainstream education 'norms' have not necessarily precluded the advancement of the property discipline. For example in Baxter's (2007) research he demonstrates the application of what Biggs and Tang (2009) term 'transformative reflection' in his research reporting on the 'reengineering' of a valuation degree. The merits of transformative reflection and teaching are well established in broader educational literature including Boud (1985) and are used to 'set the stage' for effective teaching (Biggs and Tang 2009). Rather the absence of referred theories may limit the adoption of property research in other disciplines.

In acknowledging the view of Baxter (2007) and others the reminder of this research is structured with consideration of the chosen teaching theory of constructivism and approach to constructive alignment within the discipline of property education.

Learning outcomes

As discussed in constructive alignment the first stage of outcomes based learning and teaching is to define the intended learning outcomes for the particular course or program. The learning outcomes are generally defined in a statement which describes what and how well students are able to do something, as opposed to prescribing topics or material to cover (Biggs and Tang 2009).

Published research relating to assessed competencies has been critiqued herein in an aim to uncover learning outcomes which may be applicable to enhance the learning experience for property students. With respect to property education in Australia, Poon and Brownlow (2014) acknowledge that there is no lack of research discussing the need for reform of property education. On the other hand they identify a gap in the previous research into the knowledge, skills and attributes required for property professionals. In justifying the need of their research into competency expectations, Poon and Brownlow (2014) make the observation:

> *Previous studies have expressed concerns on the need for property education reform, but there is yet to be any research identifying the qualities (e.g. knowledge, skills and attributes) required for property professionals (Poon and Brownlow 2014, p.258)*

In assessing competencies, Poon et al (2011) and Poon and Brownlow (2014) distinguish between knowledge, skills and attributes. In a similar study Tu et al (2009) group knowledge, skills and attributes in broader term 'skills and competences'. The variation in interpretations is not specific to the property education discipline but rather regarded by some as a systemic issue in Australian higher education (Barrie 2006). According to Barrie (2006) university communities have struggled to identify the combination of skills, attributes and knowledge to include in statements of graduate outcomes. While he contributes the issue to factors including a misinterpretation of what constitutes generic graduate attributes, he cites Bowden in defining his view of graduate attributes, as:

> *...the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future. (Bowden et al. 2000 cited in Barrie 2006, p.217)*

For literary purposes, competencies, in this review, have been considered in two broad categories, being 'skills and attributes' and 'knowledge'.

Skills and attributes of the graduates

Through an online survey Tu et al (2009) sought to test the empirical findings of Weinstein and Worzala (2008) via a survey based on the authors' prior empirical findings to uncover the best ways to educate future property professionals. While their study focused on Northern American graduate real estate schools the findings with respect to desired critical skills would appear universal. Tu et al (2009) tested eleven set skills and competencies against the preferences of stakeholders including faculty, students, graduates and board members. On average they found the top three student skills to comprise critical thinking, comprehensive knowledge of business and quantitative/financial analysis skills.

Students considered the objectivist comprehensive knowledge about the property industry as most significant whereas the other three groups placed more emphasis on the constructivist attributes and skills relating to critical thinking and the ability to analyse and communicate. The comparably lower weighting of knowledge by alumni and board members may be attributable to the type of knowledge implied by the responders. Or even the future employers consider the type of knowledge delivered by the faculty does not align with that required to be a successful industry professional, a view shared by Leinhardt et al (1995). Besides those, the study by Tu et al (2009) reflected a relative consensus amongst the stakeholders.

Poon et al (2011), utilising previous studies conducted a broad survey investigating 31 knowledge areas, 20 skills and 21 attributes. The questionnaire was directed toward RICS accredited course providers. The respondents were categorised into two groups, being graduates and employers. Employers were asked 'what they feel graduates require' whilst the graduates were asked 'what they feel they acquired during their studies' (Poon et al 2011). Employers considered communication to be paramount with the highest rating skill being 'effective oral communication' and six of the top ten skills relating to various forms of communication, writing and listening (Poon et al 2011). Other skills highly ranked by employers included 'numeracy' and 'ability to define and solve problems', and 'information technology' (Poon et al 2011). In broad terms the graduates agreed they acquired the primary skills albeit 'numeracy' reflected a relatively lower score (Poon et al 2011), presenting a gap between the expectations of employers and reflections of the graduates. Similarly the graduates were less inclined to agree that they had acquired appropriate skills in 'negotiation and industry based software tools' (Poon et al 2011).

There are variations between the skills sought from property graduates in findings of Poon et al (2011) and the findings of Tu et al (2009). Potentially the desired skill set variation relates to the cultures of the employees and differences in learning and teaching practices between the United States of America and Europe. Nevertheless high rating skill sets from both regions and studies include communication in oral and written forms.

Employers, in the study by Poon et al (2011), rate 'ability and willingness to update professional knowledge', 'professional attitude', 'interpersonal skills', 'ability to effectively work as part of a team', and 'enthusiasm' as the top five attributes sought. Board members in the Tu et al (2009) support the desire for graduates to work effectively in teams. Had the studies been conducted in comparable ways with identical terms and categorisation it is likely that further overlap in desired attributes may be witnessed.

In a subsequent research project Poon and Brownlow (2014) sought to identify the competency expectations for property professional in Australia. The study was in part an extension of Poon et als (2011) research from the United Kingdom as it utilised the same list of knowledge areas (31), skills (20) and attributes (21). In the later Australian study they utilised a quantitative survey tool administered through the API, specifically addressing the institute's membership.

With respect to skills there are emergent themes across the Tu et al (2009), Poon et al (2011) and Poon and Brownlow (2014). A popular skill relates to communication, in both oral and written forms. In the study from the United Kingdom (Poon et al 2011) employers rated oral communication as most significant whilst the Australian study had API members rating written communication and report writing as dominant (Poon and Brownlow 2014). As illustrated in table 1 oral and written skills were considered within the top three skills in the United States study which included a broader diversification of stakeholder groups. The Tu et al (2009) findings diverged from the others as quantitative/financial analysis skills were considered most sought after.

Table 1 Skills

Tu et al (2009)	Poon et al (2011)	Poon and Brownlow (2014)
Quantitative/financial analysis skills	Effective oral communication	Effective written communication
Oral communication skills	Report writing	Report writing
Writing skills	Effective written communication	Effective oral communication
Negotiation skills	Numeracy	Decision making
Leadership and management skills	Effective verbal presentation	Effective listening

The ability and desire for a graduate or student to work effectively as part of a team and on their own are shared attributes in the three studies, as depicted in table 2. The United Kingdom and Australian studies additionally share their respective institution members' desire for university graduates to have a professional attitude. While contestable in the nature of categorisation, the API members identified 'practical experience' as the most sought after attribute. The most striking variation from the studies relates to the attribute of critical thinking where it rates as the most important in the United States study. While not specifically termed in the other studies, the somewhat related attribute of creativity rated as least important in the responses from the Australian study. Poon and Brownlow (2014) consider the response to echo previous research and they attribute the low weighting to:

> ...property professionals are usually members of professional organisations such as the API or RICS, and their work is largely bound by legislations and therefore they have less flexibility to be creative. (Poon and Brownlow 2014, p.277)

Table 2 Attributes

Tu et al (2009)	Poon et al (2011)	Poon and Brownlow (2014)
Critical thinking	Ability and willingness to update professional knowledge	Practical experience
Ability to work individually	Professional attitude	Professional attitude
Ability to work in teams	Interpersonal skills	Ability and willingness to update professional knowledge
Leadership and management skills	Ability to effectively work as part of a team	Ability to work independently
	Enthusiasm	Willingness and ability to accept responsibility

The other focus of the Tu et al (2009), Poon et al (2011) and Poon and Brownlow (2014) studies relates to knowledge, specifically the knowledge fields or topics of study, as opposed to the theoretical perspectives of knowledge type.

Knowledge

Oxford (2011) refers to knowledge in both theoretical and practical understandings of the subject. Biggs and Tang (2009) and Leinhardt et al (1995) make similar distinctions citing university, or declarative, knowledge and professional, or functioning, knowledge as:

> Professional knowledge is functioning, specific and pragmatic. It deals with executing, applying and making priorities. University knowledge is declarative, abstract, and conceptual. It deals with labelling, differentiating, elaborating and justifying. (Leinhardt et al 1995 cited Biggs and Tang 2009)

Leinhardt et al (1995) share a particularly critical view of university educators in the field of applied professions, such as property, teaching declarative, non-functioning knowledge stating:

> As university educators and researchers, we have tended to ignore or devalue the uncodified knowledge of practice. Our testing procedures bear witness to our values as the probe analytic, principled knowledge. (Leinhardt et al. 1995)

A similar theme may be drawn from the research of Poon and Brownlow (2014) and the practices of the API. As discussed, Poon and Brownlow's (2014) survey responders considered 'practical experience' to be the most sought after of graduate attributes. This view underlines constructivism with the idea that knowledge is not transmitted to the student, but rather constructed through activity or social interaction (Vos et al 2011 and Biggs and Tang 2009).

In reporting the most desirable fields of property knowledge sought after by the university community, in the United States, Tu et al (2009) presents a 'comprehensive knowledge of the business' and an 'understanding of the current market trends'. From a United Kingdom perspective, Poon et al (2011) found employers valued most significantly graduates with knowledge in valuation, property law, landlord and tenant law, professional practice and ethics, and client care.

In Australia, the API (2013) present a prescriptive list of knowledge fields that the majority of accredited courses within a degree may cover, as presented in table 3. As such, there is a correlation with the findings of Poon and Brownlow (2014) whose survey comprised members of the same institute. According to Poon and Brownlow (2014) knowledge fields sought by members but not prescribed by the institute extend to societal, market awareness and the specific practice of rural valuation. Similarly the findings from the United Kingdom survey explicitly present the opportunity for property programs to assist students with their development of knowledge in client care, and conflict avoidance and resolution, or the related fields of ethics.

Table 3 Knowledge

Poon et al (2011)	Poon and Brownlow (2014)	Australian Property Institute (2013)
Valuation	Valuation	Building construction
Property law	Professional standards	Finance and accounting
Landlord and tenant law	Specialist knowledge in the field of practice	Commercial law
Professional practice and ethics	Construction knowledge/techniques	Property valuation fundamentals
Client care	Understanding the wider built environment and the roles of other built environment professionals	Property investment
Property development	Factors affecting property market, including international, national and local factors	Property economics
Construction technology	Being able to understand and analyse of stakeholders' needs	Property law
Property economics	Market awareness/knowledge	Property management
Planning	Rural valuation	Property market analysis
Conflict avoidance and resolution	Market analysis	Land use, planning and development

(API knowledge fields are not presented in raked order)

Findings

The published research assists with framing the nature of knowledge and broad knowledge fields sought after in a graduate of the university property program. Additionally the review of the research presents skills and attributes a graduate of the property program may gain to better prepare them for a career in property. On the other hand there are clear limitations, acknowledged in the respective research papers, and there is insufficient published research to develop, or prescribe, comprehensive learning outcomes for individual university subjects or courses.

Broader program learning outcomes, which by nature do not specifically address course content, may be inferred from the critique of published research and consideration of the learning theories regarding how students learn. Through consideration of constructive alignment (Biggs and Tang 2009), the aim of an Australian property program may be served if their graduates can achieve the following outcomes:

1. Describe and explain objective theories of property custodianship and the practical skills you require for a career in property.

2. Analyse the functioning of property and apply practical skills to make the best decisions in real-life property situations.

3. Communicate effectively as a professional with clients and colleagues in addressing real-life property situations.

4. Operate effectively and ethically as a team member in real-life property situations.

5. Reflect on your role as a property student and initiate transformative practices to guide your actions in an unknown future.

These program level learning outcomes are sufficient to guide the next stage of constructive alignment, being the consideration and application of teaching and learning activities. The prescribed outlines are not detailed enough to inform the more comprehensive process of designing learning activities. As such this research is restricted to the identification of learning and teaching activities and assessment approaches to enhance learning in Australian property education.

RESEARCH APPROACH

This research and the remaining part of this paper are intentionally structured with constructive alignment as a model and framework for reflecting on property education and the opportunity to enhance learning. Biggs and Tang (2009) speak of the constructive alignment, utilised in this manner as 'provid[ing] a conceptual framework for reflecting on questions that need to be answered at critical stages of teaching in general' (Biggs and Tang 2009, p.249). Specifically this research considers teaching/learning activities and assessment in the context of the five program level intended learning outcomes.

Excluded from this study is workplace learning. While workplace learning may contribute to the attainment of the intended learning outcomes, this study is specifically focused on the learning activities and assessment related to course or subject delivery as facilitated by the lecturer or subject coordinator.

Teaching/learning activities

As the primary activity of tertiary institutions, the effectiveness of teaching and learning activities dominate published research into higher education. Similarly quasi industry investigations into the sustainability of the university model, such as Ernst and Young (2012), and emergent learning technologies (Johnson et al 2012, 2013, 2014) provide assessments of tertiary teaching and learning activities. Biggs and Tang (2009) and Boyd (2005) acknowledge the dominance of lectures and tutorials in higher education and property respectively yet they present alternative approaches. Specifically Biggs and Tang (2009) speak of developing teaching/learning activities in the context of the learning outcomes and nature of the knowledge, skills and attributes sought. In a similar manner the remainder this research considers teaching and learning activities in the context of the five intended learning outcomes.

1. Describe and explain objective theories of property custodianship…

The first intended learning outcome relates to the describing and explaining of objective theories of property custodianship and the practical skills required for a career in property. The knowledge prescribed in the learning outcome infers a focus on the learning of objective 'truths, or objectivism (Jonassen 1991) and the teaching of declarative knowledge. Biggs and Tang (2009) are particularly critical of the lecture, and tutorial, method as a generic university duty noting that while they have their uses, they are limited in what they can achieve and can become passive and conducive to surface learning. Nevertheless, the traditional lecture may suit the receptive learning so long as it is interactive, with supportive learning activities and an emphasis placed on what the student does. Similarly educational technology advances have presented numerous tools and activities to enhance declarative knowledge development.

Perhaps the most referenced opportunity or source of competition, relating to university education, is from Massively Open Online Courses (MOOCs). While learning at scale, and at distance is not a new phenomenon, a MOOC is an educational delivery approach that is generally available 'openly', meaning without charge for access (Johnson et al 2013). Emanuel et al (2012), in similar terms to Ernst and Young (2012) and the advocates' perspective in Johnson et al (2013), share the literary perspective on MOOCs as:

> Massive open online courses (MOOCs) have been hailed as an educational revolution that has the potential to override borders, race, gender, class and income. (Emanuel et al 2013, p.342)

While the opportunity exists for MOOCs to educate the diverse masses Emanuel et al (2013) share how they may be falling short on expectations. Utilising survey responses to participants utilising the online education service Coursera, Emanuel et al (2013) concludes that MOOCs are being taken by the educated few, far from realising the high ideals of their advocates. MOOCs seem to be reinforcing the advantages of the 'haves' rather than educating the 'have-nots' with 83 percent of the surveyed students already having post-secondary degrees (Emanuel et al 2013). Regardless of the argument for social equity, MOOCs may be regarded as an early stage example of a search for new educational models (Ernst and Young 2012). Similarly MOOCs, as with interactive lectures, may encourage receptive learning and lead a learner to the development of declarative knowledge and an understanding of the skills they will require for a career in property.

2. Analyse the functioning of property and apply practical skills…

According to Biggs and Tang (2009) the concept of lecturing or delivering information is contrary to the theory of constructivism and the concept of constructive alignment, opposing the focus on learning, rather than teaching, and places little emphasis on what the student does. For learning outcomes framed around 'apply', such as the second adopted intended learning outcome, 'apply practical skills to make the best decisions in real-life property situations', they proposed case-based learning, group work and workplace learning.   Similarly Biggs and Tang (2009) promote problem-based learning as a reflection on the way people learn in real life, where the learner seeks the knowledge of disciplines, facts and procedures that are needed to solve the ensuing problems.

Problem-based learning

In the context of property education, Boyd (2005) and Susilawati and Yam (2013) propose integrated problem-based workshops and other industry linked training opportunities as teaching delivery modes to provide a more effective learning environment for property students. In their published research Susilawati and Yam (2013) investigate the learning potential for case-based learning through analysis of feedback from stakeholders in an international case completion. They conclude there was sufficient feedback to assert that the case competition:

> *...helped students to develop critical thinking skills, and the ability to solve problems in a changing environment within a group dynamic changing environment within a group dynamic' (Susilawati and Yam 2013, p.7).*

Susilawati and Yam (2013) additionally make the explicit connection to Biggs and Tang's (2009) concepts of active learning and the potential to engage students in a deeper approach to their learning.

Case-based and problem-based learning approaches as applied in property education are not without limitations. Susilawati and Yam (2013) acknowledge problem-based learning as labour intensive and their description of the analysed case-study demonstrates the considerable financial cost and the cost of resourcing required to enable relatively few students to receive the perceived pedagogical advantages. The authors note that only three universities had participated in all four competitions and that participation was always subject to funding and the availability of a coach or mentor. As a further limitation, the nature event being a competition, or opportunity for trans-university rivalry, may add emotive stimulation but also bias the team selection. In such a competition it is conceivable that contestant selection may be based on prior academic performance, excluding non-academic students, and, in a similar manner to MOOCs benefit the 'haves' over the 'have nots'.

Outside of property education other innovative problem-based learning approaches have been empirically tested with positive results relating to student centred learning and problem solving. Two examples, relevant to property education include the flipped classroom and serious games. Both games and flipped classroom are considered important development in educational technology for higher education, in the *NMC Technology Outlook for Australian Tertiary Education: A Horizon Project Regional Report* (Johnson et al 2014a). In a flipped classroom materials and online resources are presented outside of classroom time for students to work through in their own time. In return the class time may be dedicated to more authentic problem-based learning activities. Johnson et al (2014a) advocate the approach referring to the models as:

> *...learning that rearranges how time is spent both in and out of class to shift the ownership of learning from the educators to the students. In the flipped classroom model, valuable class time is devoted to more active, project-based learning where students work together to solve local or global challenges — or other real-world applications — to gain a deeper understanding of the subject. (Johnson et al 2014a, p.10)*

Games are another vehicle well aligned to problem solving and the constructivist theory of learning. Serious games are games that aim to support learning processes in a more playful way (Poplin 2011). By their nature serious games are problem solving vehicles that support the idea that knowledge is not transmitted to the student, but rather constructed through activity. Similarly gameplay is said to present the means for a student to develop abstract imaginative thinking and realise goals not yet achievable in real life (Vygotsky (1978 cited in Young et al 2012). These attributes associated with playing serious games align well with the outcomes tasked to analyse the functioning and applying practical skills in a simulated environment.

3. Communicate effectively…

As discussed in the literature review oral and written skills are considered prominent skills for a property graduate. The development of such practical skills may be considered in the context of how property programs are offered, specifically the mode of delivery and assessment approaches. In total there are 43 property program offerings identified through searching 'property' and 'real estate' in the Hobsons course finder and the respective centralised tertiary application hosting entities for each of the Australian states and territories. Of the 20 undergraduate programs offered in 2013 to 2014, the majority (15 or 75 percent) are offered on campus only with CQUniversity providing the only solely online, or external, program. Curtin offers the flexibility of on campus or blended learning whilst Deakin offer their degree through either internal or external modes.

For the majority of property programs who offer face-to-face learning and assessment the opportunity for a student to enhance their oral communication may be provided through in-class group activities and even assessments such as class presentations and problem-based learning activities as recommended by Susilawati and Yam (2013). For distance education programs there are a range of tools to encourage communication, especially those incorporated in MOOCs to enable peer guided learning. Nevertheless the simulation of oral communication is complicated and not empirically addressed in higher education research.

Rather the focus of communication in higher education has been on the potential of social media and other communication tools (Johnson et al 2014). Johnson et al (2014) identify the integration of online, hybrid and collaborative learning systems as an emerging driver of change in higher education stating their use 'to facilitate group problem-solving and build communication skills, while advancing students' knowledge of the subject matter' (Johnson et al 2014, p.10).

Written skills and specifically proficiency in report writing may be best suited to traditional forms of assessment. Alternatively, verbal and written communication skills are another avenue for consideration in the design of learning activities.

4. Operate effectively and ethically as a team member…

Group work and problem-based learning activities provide the opportunity to simulate professional practice and help students to develop critical thinking skills, and the ability to solve problems in a changing environment within a group dynamic. Such activities are resource and time intensive and some case and group work may be impractical to apply in an online environment.

With respect to serious [digital] games, massively multiplayer online games, or MMOs, are said to support collaborative problem solving (Isbister et al 2010, Gee 2003, 2011 and Johnson et al 2012). The playing of MMOs may require the skills, and encourage skill development, relating to teamwork, leadership, and discovery (Johnson et al 2012). Specifically Isbister et al (2010) speak of MMO games as:

> …provide[ing] structured experiences in which players take on specialized roles and work together to solve problems, leveraging one another's strengths… (Isbister et al 2010, p. 2043)

Some online games, namely *Minecraft* and *World of Warcraft* have been integrated into specific course curriculum to bring many players together to work on activities that require collaborative problem solving (Johnson et al 2012). Online games are complex systems (Johnson et al 2012), and as such may not align well with specific course content or intended learning outcomes. As Johnson et al (2012) discuss the link between MMOs and education is said to exist in the highest levels of interaction in which game play requires teamwork, leadership, and discovery.

It is the property programs offered in online modes that would appear as beneficiaries from incorporating existing massively multiplayer games into their curriculum.

5. Reflect on your role as a property student and initiate transformative practices…

According to Mezirow (1990) reflection is generally used as a synonym for higher-order mental processes. As an activity reflection relates to the self-exploration of experiences in order to form new understandings and appreciation (Biggs and Tang 2009). In that way reflection is the validating what is known and, if applied in an appropriate manner, may lead to transformative learning (Mezirow 1990).

While oriented toward the constructivist theories of knowledge creation, reflective practice is not just an activity situated in higher education. Rather the practice of reflecting and then taking transformative action is situated in many contexts including professional practice. Biggs and Tang (2009) attribute the coining of the term 'reflective practitioner', to Donald Schon and his 1983 book titled *The Reflective Practitioner: How professionals think in action*. In describing the reflective practitioner they point out that effective professionals, which may include those in property, need to reflect when faced with new problems for which they have not been specifically trained to cope with.

While the published research into serious games relates to behavioural transformation and knowledge construction there are few direct connections between the playing of serious games and the activity 'transformative reflection'. On the other hand Nilsson and Jakobsson (2011) and Johnson et al (2014) propose gamers are encouraged to adopt adaptive critical reasoning skills and critical thinking. Nilsson and Jakobsson specifically discuss:

> *...when students are allowed to manipulate variables in a simulation computer game, they develop critical reasoning skills that may be used to solve problems' (Nilsson and Jakobsson 2011, p.36).*

Serious games may provide the appropriate environment or setting for transformative reflection to occur. There is however insufficient empirical evidence to assert that playing serious games would initiate transformative practices to guide actions in an unknown future, as sought in the final learning outcomes. As such the most appropriate way to leverage the transformative reflection potential of gameplay may be through the more recognised assessment medium, the reflective journal.

Assessment

Besides constructive alignment another dominant, and related term in higher education practice and research is 'assessment for learning' or 'assessment as learning'. While Brown (2004) discusses the concept in detail it is evident that assessment items have a role in education beyond just measuring performance. Students utilise formative feedback to learn and adapt their respective learning approaches (Biggs and Tang 2009) and depth of cognitive processing. Some assessment tasks, such as multiple choice tests and end of year exams, are not followed with in-depth student feedback but rather only a prescribed a grade. In such a case the summative only feedback provides little scope for students to learn and they are often reluctant to pursue formative feedback when the course is finished.

1. Describe and explain objective theories of property custodianship…

The first prescribed learning outcome relates to property students developing declarative, or university knowledge. Declarative knowledge is typically assessed by writing answers to set questions or by multiple choice testing (Biggs and Tang 2009). Summative assessments such as the multiple choice test are said to provide little scope for assessment for learning (Brown 2004 and Biggs and Tang 2009). On the other hand the shared assessment of written tasks with rubrics may enhance the learning of declarative knowledge.

Rubrics are utilised in education to articulate expectations for an assessment (Andrade 2000; Stiggins 2001; Arter and Chappuis 2007 cited in Reddy Y. M. and Andrade 2010) as well as provide more reliable benchmarks for comparison (Biggs and Tang 2009). Across disciplines there are various forms of rubrics, including those designed specifically for serious games assessment. Annetta, Lamb and Stone (2011) describe the rationale, development and psychometrics of a serious games rubric noting the reliability, or fair agreement amongst assessors.

Gobbets and e-assessments are additional emerging assessment tasks with the potential to streamline the assessment of declarative and functioning knowledge in large classes. With gobbets, significant chunks of content, with which the student should be familiar, are presented to the student and they have to frame a response or answer (Brown and Knight 1994 cited in Biggs and Tang 2011). The students task is to identify the gobbet, explain its context, specify why it is important, what it reminds them of and so on, in an aim to access a 'bigger picture' context (Biggs and Tang 2011).

E-assessment haves two main roles, providing set feedback and encouraging the creative use of media. Computer-assisted assessment relates to standard situations, asking standard convergent questions and providing set feedback. Beyond that, interactive e-assessments allow students free rein to construct models, using a range of media. E-assessments may adapt well to peer-assessment (Biggs and Tang 2011).

2. Analyse the functioning of property and apply practical skills…

Gaming related authentically to course content can help a student gain a fresh perspective on the material and potentially engage them in the content in more complex and nuanced ways (Johnson et al 2012, 2013). In discussing engagement in games, Mayo (2009) cites rapid feedback and the relationship between reward, self-confidence and self-efficacy, and the translation to greater persistence, as contributing to a higher level of accomplishment. Accomplishment is not necessarily a measure of functional knowledge construction however engagement and self-efficacy are readily associated with deeper learning and the functional knowledge teaching activities presented by Biggs and Tang (2009).

Winning and losing is another way that emotion may be intrinsically harnessed in games and gameplay (Gee 2003). With games, learners can take risks, and share the respective despair or euphoria, in a space where real-world consequences are lowered (Gee 2003). Gee (2003) supports other ways to situate emotive learning in games such as though role play as a player may adopt avatars or characters with cultural backgrounds opposed to their own and assume multiple perspectives. As shared by Professor Beard and Warren (2013) such destabilisation may have a role in good university education practice.

More formally, assessment for attributing summative grades in serious games has been adopted by Adams (1998). Adams pioneered the embedding of the simulation, *SimCity 2000*, in an introductory urban geography class. In his study university students were tasked with three experiments instructing the creation and management of their virtual cities and subsequent reporting of their responses to set questions through an assessable essay.

The assessment did not, prima facie, appear as a barrier in the Adams (1998) study as his students reportedly voted the *SimCity* project as the most popular in the course offering. Through analysis of the essays Adams found the most effective learning to be associated with the game based activity was not the learning of facts, in an objective sense but rather the development of certain attitudes through interaction with the software. The attitudes uncovered by the students in playing SimCity include:

1. *power: the feeling that urban patterns and processes can and often should be changed;*

2. *interrelatedness: awareness of the complex ways that any modification of the urban fabric can affect urban processes and patterns throughout a city;*

3. *respect for urban decision-makers and planners;*

4. *familiarity with the bird's eye perspective of geographers and planners;*

5. *appreciation for the collection and allocation of municipal revenues; and*

6. *humility toward the task of regulating and maintaining a system as complex as a city.*

(Adams 1998, p. 54)

With respect to flipped classroom, serious games and case-based learning, observation, activity logs and reflective journals, and portfolios present as potentially effective assessment tasks. Specifically portfolios may include a range of assessments including e-assessments as discussed previously.

3. Communicate effectively…

For property programs offered in face-to-face or blended learning modes the opportunity for a student to enhance their oral communication may be provided through class group activities such as those proposed in a flipped classroom. Assessment of communication, in traditional oral and written forms is appropriately set in an authentic or simulated environment. Such settings may be presented in a classroom or theatre with students' role playing or acting in the respective professional situation. In discussing assessment and grading of functioning knowledge, Biggs and Tang (2009) speak of the appropriateness of student presentations and related benefits associated with peer input.

For distance education programs the simulation of oral communication is not empirically addressed in higher education research. Rather the focus of the research is set on the potential of social media and other communication tools, in a portfolio. Similarly MMO games and virtual worlds are commended for their collaborative problem solving potential but not the assessment of more traditional oral skills.

4. Operate effectively and ethically as a team member…

Assessment in group projects can be contentious due to a myriad of factors including unequal contributions as raised by Biggs and Tang (2009). One solution may be to include peer assessment, conducted in secret after a formative discussion of contributions. Reflective journals present another prospective assessment tool to evaluate how effectively and ethically a team member operates in real-life property situations.

As demonstrated by Tanner and Lindquist (1998), playing serious games as cooperative learning activities may leverage the existing learning outcomes and develop team-building skills. When asked to rate their view of the statement 'I felt more social support from my teammates than I normally do from classmates in a traditional (non-team) classroom exercise' (Tanner and Lindquist 1998, p.147), 83 percent of the respondents in the Tanner and Lindquist (1998) exercise either agreed or strongly agreed.

5. Reflect on your role as a property student and initiate transformative practices…

Critical incidents in case-based learning and flipped classroom activities and serious games may provide the appropriate environment or setting for transformative reflection to occur. The most appropriate way to leverage the transformative reflection potential may be through the more recognised assessment medium, the reflective journal (Biggs and Tang 2009). In justifying the use for reflective journals, Biggs and Tang (2009), connect the process of reflection as guiding professional functioning, and the journals usefulness in assessing intended learning outcomes.

For the intended learning outcome relating to 'reflect on your role as a property student and initiate transformative practices to guide your actions in an unknown future', a journal may be considered a deliverable, or evidence of the students reflections. On the other hand, if the journal is truly reflective and transformative, not just an expression of what had happened, then there may be likely be reflections of a personal nature. As Biggs and Tang (2009) discuss the assessment of such personal reflections needs to be delicate. They take the argument further by saying reflective journals should not be marked, or graded, as a task, but taken as sources of evidence for the fulfilment of intended learning outcomes.

The approach by Adams (1998), in assessing his student's reflections on playing *SimCity*, conflicts with the view from Biggs and Tang (2009). In the Adam's (1998) study the task was named as an essay, or critique, rather than reflective journal. Nevertheless the assessment task he prescribed related to his research findings and encouraged students to adopt reflective practices and discuss ideologies. For example a student's reflection shared, went beyond describing events that happened and presented the first stages of transformative reflection, covering the three stages of Boud's (1985) critical reflections, being 'describe objectively what happened', 'interpret the events', and 'evaluate the effectiveness and usefulness of the experience', as:

> *SimCity does teach some rather disturbing lessons which are obviously misleading. If I make a mistake in my city, I can simply bulldoze it, or reload the city from my last save point. If a plane crashes into an apartment building, who cares? I'll just shut the game off. ...[R]eal mayors cannot simply reload their cities if they screw up. (Adams 1998, p.52)*

Another of Adams (1998) students presented a simple comment relating to the final, 'plan how this information will be useful to you', stage of Boud's reflective D.I.E.P framework noting 'I hate politicians but I will look at them from a different light now. It is not an easy job to maintain an entire city' (Adams 1998, p.51).

While there may be ethical considerations worth noting in the Adams (1998) approach, the quality of reflections support the notion that serious games and reflective journals may be constructively aligned to the final intended learning outcome 'reflect on your role as a property student and initiate transformative practices to guide your actions in an unknown future'.

CONCLUSION

There are distinguishable levels of processing in learning with Marton and Saljo (1976a) referring to two, being deep level and a surface level. In surface level processing the student directs their attention towards learning the knowledge verbatim. Deep level processing sees the student look beyond the text itself toward the material and what is signified, and in turn retain the knowledge for longer and achieve other sought after learning outcomes (Biggs et al 2001).

As asserted by Biggs and Tang (2009) active learning, through problem-based learning activities, compels non-academic students to employ a higher level cognitive activity making them learn more like their academic counterparts. In turn this less passive approach to learning is said to lead to what they define good teaching as:

> *...getting most students to use the level of cognitive processes needed to achieve the intended outcomes that more academic students use spontaneously. (Biggs and Tang 2009, p.11)*

The active approach to learning and teaching is not without criticism, in particular the supportive constructivists' theory, underlines the idea that knowledge is not transmitted to the student, but rather constructed through activity or social interaction. From a pure objectivist perspective the lack of objective direction, or control in the activity or social interaction, leads to academic chaos and, as such, there is a necessity for planning and measuring outcomes. This argument is evident in property education as various stakeholders seek knowledge, skills and attributes from graduates which necessitate objective and constructive approaches to learning.

As demonstrated in the structure of this paper, constructive alignment is a form of outcomes based learning and teaching as well as a model and framework for reflecting on property education and the opportunities to enhance learning. In applying constructive alignment this project and the previous research findings from property education and research have been considered to form higher level, generic program based learning outcomes and considered alignments with learning and teaching activities and assessment as summarised in table 4.

Table 4 Learning outcomes and prospective opportunities for learning activities   and assessment

Intended learning outcomes	Learning and teaching activities	Assessment
Describe and explain objective theories of property custodianship and the practical skills you require for a career in property	Lecture and tutorial MOOCs	Presentations, gobbets and report writing E-assessment
Analyse the functioning of property and apply practical skills to make the best decisions in real-life property situations	Case-based learning Serious games Flipped classroom	Observation Activity log and reflective journal Portfolio
Communicate effectively as a professional with clients and colleagues in addressing real-life property situations	Group work Integrated learning systems	Presentations and report writing Communication portfolio
Operate effectively and ethically as a team member in real-life property situations	Group work MMO games (for MOOCs)	Peer assisted assessment and reflective journal Peer assisted assessment and reflective journal
Reflect on your role as a property student and initiate transformative practices to guide your actions in an unknown future.	Group work Serious games	Reflective journal Reflective journal

Further research

Empirical support for the suggested learning activities and assessments will ultimately relate to measuring their performance against the intended learning outcomes. Testing would extend to see if and how the approaches enhance the learning experience for property students.

Limitations of this research

This research relates to defining learning outcomes and indentifying opportunities to enhance learning in property education. A defining and controversial aspect in qualitative research of this nature, relates to the role and influence of the researcher. As such the investigatory nature of qualitative research approach is affected by researcher's interpretations, leading to potential misrepresentations, however unintentional.

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