The studio concept and its forms in architectural education in Australia and New Zealand (2007–2011)

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A thesis submitted in total fulfilment of the requirements of the degree of Doctor of Philosophy

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Statement of Original Authorship

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository, subject to the provisions of the Copyright Act 1968.

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Acknowledgments

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Lastly I want to thank the participants in the study and the students I have taught.
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Abstract

For many centuries the studio concept has been intimately linked to architectural education, being considered the “heart” of the discipline’s education. It was the preferred model when architectural education was first accepted into higher education across the western world, including in Australia and New Zealand, where since its introduction it has been adapting in response to context. In recent years the landscape of higher education in Australia and New Zealand has been undergoing significant changes due to global trends of massification, which have led to the decline in resources, insufficient space and increasing student enrolments. It is in this landscape that architecture academics, in 2007, reported concerns for the studio’s future despite its prominent position and enduring legacy in architectural education. However, confusion ensues, as different studio forms make it difficult to define. Therefore, the aim of the study is to understand how the studio concept and forms are responding to the changing higher education landscape in Australia and New Zealand over the period of 2007 to 2011.

For the purpose of reaching the defined aim of this study, a review of literature relating to both current and past studio meanings in architectural education was conducted, also other disciplines were considered in the review for the purpose of establishing the impact of the higher education landscape being experienced in Australia and New Zealand. Also, the mapping of literature documents the extent of the studio concept and its forms according to place, culture, teaching approach and curriculum. Many concerns relating to the effectiveness and suitability of studio places, studio culture and past instruction methods are documented, which indicate the need for an evidence-based scholarship in the changing climate. It is clear that a knowledge gap exists in how the term studio is conceptualised and the studio models present. This dissertation explores these knowledge gaps and potential implications for the architecture studio’s future in Australia and New Zealand.

A mixed method approach was employed in this study, largely based on qualitative inquiry with a purposeful sample group of six schools and 10 academics, and embedded with quantitative data. The group of study participants reflects the maximum variations from a secondary analysis of Ostwald and Williams’s studio (2007a & b) and Australasian school data (AIA, 2008b). Multiple methods were used to
understand the studio form in which each academic involved in the study was employed, including a series of interviews relating to a recent design unit they taught, as well as the analysis of the unit outline and supporting materials. These approaches were supported by an observation of the teaching facilities in which the academic participant worked.

Biggs's (2003) framework of constructive alignment system for quality learning and teaching was used to analyse the schools' studio forms and implications. Four studio models have been developed from the analysis for the purpose of defining the studio diversity and relationship between the curriculum structure, teaching methods, environment and assessment which exist in the teaching of studio. It is clear that academics understand the studio concept holistically but also in a pluralistic way as the term is used interchangeably to denote design teaching, design unit and the physical place, despite the absence of established traditions such as studio places.

This dissertation contributes new insight into how the diversity of studio models, largely driven by the institutional climate, are creating a considerable divide between schools in Australia and New Zealand which may, in turn, lead to a distinct two-tier system. Another significant outcome from the study was the development of a typology of studio models to support debate about studio forms in practice.

Keywords: design studio; studio models; architectural education; pedagogy; higher education landscape; massification; conceptions of teaching
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## Abbreviations

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<th>Definition</th>
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<tr>
<td>AACA</td>
<td>Architects Accreditation Council of Australia</td>
</tr>
<tr>
<td>AASA</td>
<td>Association of Architecture Schools of Australasia</td>
</tr>
<tr>
<td>AIA</td>
<td>Australian Institute of Architects (formerly known as RAIA)</td>
</tr>
<tr>
<td>AIAS</td>
<td>American Institute of Architecture Students</td>
</tr>
<tr>
<td>AM</td>
<td>Academic managers (Head of School and/or Program Head) interviewed in schools of architecture in Australasia (Ostwald &amp; Williams, 2007a &amp; b)</td>
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<tr>
<td>ANZ_APAP</td>
<td>Australian and New Zealand Architecture Program Accreditation Procedure</td>
</tr>
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<td>HEIs</td>
<td>Higher education institutions</td>
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<tr>
<td>NAAB</td>
<td>National Architectural Accrediting Board of the US</td>
</tr>
<tr>
<td>NCSA</td>
<td>National Competency Standards in Architecture</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales (State of Australia)</td>
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<tr>
<td>NZ</td>
<td>New Zealand</td>
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<tr>
<td>NZIA</td>
<td>New Zealand Institute of Architects</td>
</tr>
<tr>
<td>OUA</td>
<td>Open Universities Australia</td>
</tr>
<tr>
<td>QLD</td>
<td>Queensland (State of Australia)</td>
</tr>
<tr>
<td>RAIA</td>
<td>Royal Australian Institute of Architects</td>
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<tr>
<td>REG</td>
<td>Regional-based university in Australia (Charles Darwin University, Deakin University, University of Canberra, University of Newcastle and University of Tasmania)</td>
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<tr>
<td>RQ</td>
<td>Research question</td>
</tr>
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<td>SA</td>
<td>South Australia (State of Australia)</td>
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<td>SSR</td>
<td>Staff/student ratio</td>
</tr>
<tr>
<td>ST</td>
<td>Academic staff focus group (Ostwald &amp; Williams, 2007a &amp; b)</td>
</tr>
<tr>
<td>TLO</td>
<td>Threshold Learning Outcome</td>
</tr>
<tr>
<td>UIA</td>
<td>International Union of Architects</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>VIC</td>
<td>Victoria (State of Australia)</td>
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<td>WA</td>
<td>Western Australia</td>
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1. Introduction

Higher education is undergoing a period of significant changes (Altbach, Reisberg & Rumbley, 2009; Barber, Donnelly, & Rizvi, 2013; Coaldrake & Stedman, 2016; Davis & Farrell, 2016; Ernst & Young, 2012; Goedegebuure, Santiago, Fitnor, Stensaker, & van der Steen, 2008; OECD, 2010) and, within this context, architectural education resides. This dissertation documents a study which examined the response of Australasian (Australia and New Zealand only) architectural education to these changes by looking through the studio as a lens. The reason for this choice is that the studio or the design studio is considered to be at the "core" and "heart" of architectural education (Bates, Mitsogianni, & Ramirez-Lovering, 2015; Cuff, 1991; Kurt, 2009; Leon 2004; Salama, 2015; Webster 2004a). Further, it represents the greatest proportion of the curriculum and commitment of resources (Crinson & Lubbock, 1994; Dutton, 1991; Groat & Ahrentzen, 1996; Ostwald & Williams, 2008a; Porter & Kilbridge, 1981a; Salama, 2015). The studio concept is also described as "persuasive", "privileged" and "long-standing" and for these reasons it has been questioned (Anthony, 1991; Cuff, 1991; Crinson & Lubbock, 1994; Dutton, 1991; Ledewitz, 1985; Porter & Kilbridge, 1981a; Salama, 2015; Till, 2005; Webster, 2008). These accounts indicate both the passion and respect shown by academics and architectural practitioners towards the studio concept and its variation in architectural education, even though no universal or agreed definition of the studio exists (Ostwald & Williams, 2008a, p. 146). Hence the catalyst for this study when the studio was found to be the greatest risk and challenge faced by architecture schools in Australasia (Ostwald & Williams, 2008a, p. 147; Ostwald & Williams, 2008b, p. 34). The schools identified that the pressure of reduced resources and increased student enrolments were impacting on the studio and difficulties were being experienced in justifying and maintaining resources to the studio.

I was a member of the Ostwald and Williams research team that investigated architectural education in Australasia. This dissertation is the result of a study designed to answer some of the initial study's unanswered questions about the studio concept and its forms. The studio concept refers to how academics understand the idea where the studio form refers to its actual occurrence in a specific school. The studio model refers to the structure or pattern of the studio form. The aim is to better understand the diversification of the studio and its implications in the context of higher education in Australasia from 2007 to 2011, while acknowledging the compounding effect of architectural education also needing to respond to a time of significant changes in
architectural practice (Bates et al., 2015; Ostwald & Williams, 2008a & b; Salama, 2015; Spiller & Clear, 2014). This is achieved through the analysis of Ostwald and Williams's studio data (2007a & b) to focus on why the studio concept was considered under threat in 2007.

To undertake this dissertation the following research questions were developed:

RQ1: How is the term studio conceptualised within architectural education in the Australasian context?

RQ2: What are the factors that have led to the diversity of studio models in Australasia?

RQ3: What are the implications that arise from having the diversity of the studio models?

RQ4: What does the focus on the studio reveal about architecture education and its conditions in Australasian universities?

To establish the context for the unpacking and situating of these questions, an overview is provided of existing knowledge about the architectural studio and its role/concept in other disciplines that incorporate design thinking. This dissertation also requires knowledge of the changes occurring in higher education and their implications in Australasia. With this background established it is believed that the scope of the study and the form of the research questions will be more reliably understood.

Even though a few years have passed since the data collection period of 2007–2011, the need to better understand and value the studio remains. Salama (2015) a respected researcher and teacher in architectural education, stated:

*there is a blatant need for an extensive analysis of the architecture studio; the outcomes of such a study could be used to gain insight into the roots of traditional approaches as well as clarify their limitations and benefits* (Salama, 2015, p. 10)

He indicates that the need to better understand the studio has been perennial and apparent across the many continents in which he has worked.

**1.1 The studio context**

To start this process to frame the research, the studio context is examined through a series of comparisons. The first involves comparing studio definitions in architectural education in Australasia with international examples. These definitions are then placed
in context by examining the origins of the studio and how the evolutionary process contributes to the current diversity. Before concluding the context to the studio, comparisons are made with disciplines other than architecture to discover whether useful frameworks exist. The examination of the studio context ends with proposed research questions.

1.1.1 Studio definitions in architectural education

The studio was defined in the late 2000s by two Australasian studies (Ostwald & Williams, 2008a; Zehner, Forsyth, Musgrave, Neale, de la Harpe, Peterson, Frankham, Wilson, & Watson, 2009) with both making reference to place and culture, and involving a teaching approach which is defined as project-centred.

Typically, both a form of small group, project-centred teaching and a space or place for enculturation in a design profession and its practices (Ostwald & Williams, 2008a, p. 177).

comprising four essential elements: A culture…; A mode of teaching and learning…; A program of projects and activities…; and A physical space or constructed environment, teaching and workshop space, tools and equipment and technical assistance appropriate to project needs (Zehner et al., 2009, p. 94).

The minor distinction between these definitions is the reference made to a program of projects and activities in Zehner et al. (2009) that can be understood as the curriculum. It is from this basis that the concept of studio can be considered multivalent, holding many meanings and interpretations, including place, culture, teaching approach and curriculum. These two definitions above provide a hint as to what are the key issues confronting schools and academics with the resourcing of their spaces and staff, apart from the open and broad descriptions (Ostwald & Williams, 2008a; Zehner et al., 2009). For example, the quality and availability of studio spaces vary across architecture programs, with variations including hot-desking and timetabling of spaces which have become more common practice with some classes held in what is more like a generic tutorial or seminar room (Ostwald & Williams, 2008a). Ostwald and Williams have also speculated whether the recent inclusion of studio in curricula titles or course structure reflects the growing absence of recognisable studio spaces (Ostwald & Williams, 2008a, p. 18).

In Australasia, architectural programs must be accredited at least every five years (ANZ APAP, 2013). This process ensures that graduate qualifications are recognised in the registration process of architects, and it provides a method by which the profession
may give advice to the programs. The accreditation of programs is the principle way the profession influences architectural education. The accreditation procedure (ANZ_APAP, 2013) requires schools to demonstrate how the required competency standards (NCSA) (AACA, 2015) are met and how they comply with the Tertiary Education for Architects policy (AIA, 2008a) and how Standards for Programs in Architecture (AIA, 2009) are achieved.

On the whole, references made to the studio by ANZ APAP (2013), AACA (2008) and the AIA (2009 & 2008a) are relatively brief, broad, sometimes ambiguous and largely indeterminate. In the Tertiary Education for Architects policy the profession highlights the need for governments and universities to provide the climate for “studio learning environments” to ensure Australia’s international competitiveness and standards (AIA, 2008a, p. 3). In the Standards for Programs in Architecture (AIA, 2009), the studio is located within the section “2.4 Facilities” and refers to “studio based teaching” and the need for “adequate spaces” for design teaching (p. 2). It is unclear what adequate means here. It also recommends a Staff/Student Ratio (SSR) benchmark of 1:17 (equivalent full-time academic staff: equivalent full-time students). This shows there is not a clear definition of the space required or its facilities.

In the accreditation procedure (ANZ_APAP, 2013) the studio is referred to as a facility and site for studio work. Schools are also required to detail the number of contact hours spent in the “tutorial/studio” over the semester in all subject areas (ANZ_APAP, 2013), including Design Studies and Design Integration. This indicates that the studio is a teaching method and different from the tutorial, however the data are shown in the same column and not differentiated.

The term studio is not referred to in the NCSA – “Design, Documentation, Project Management and Practice Management” (AACA, 2008 ; AACA, 2015), which is the principal way that a program may be accredited (ANZ_APAP, 2013). It would be a reasonable expectation that the studio be referred to in these procedures since it is both highly valued by academia and central to architectural education (Crinson & Lubbcock, 1994; Dutton, 1991; Ostwald & Williams, 2008a; Porter & Kilbridge, 1981a; Salama & Wilkinson, 2007; Vowles, Low, & Doron, 2012; Zehner et al., 2009).

As a consequence of the studio being largely undefined in accreditation documents, there is little provision in the accreditation process for recommendations relating to the studio. The most likely way a recommendation would occur is if competencies have not been met by a school and a link is made to inadequate physical and human
resources. It is less likely for resources alone to lead to a recommendation not to accredit, which means that the conditions for the studio have the potential to incrementally change or decline over time.

Beyond Australasia, the term studio is also used in the UK, however descriptions from the UK indicate an emphasis on the role of the studio space and culture (Borden, Crawford, Farren-Bradley, Heron, Low, Parnaby, Porter, Roberts, & Saxon, 2010; McClean, 2009; Vowles, Low, & Doron, 2012). According to the Subject Benchmark Statement: Architecture:

The word 'studio' means much more in architecture education than a convenient workroom. It evokes an image of creative cooperative working in which the outcome: the architectural design and the education benefit in terms of skill development, is greatly superior to that which could be achieved by the individual student working alone (Borden et al., 2010, p. 13).

This statement also refers to the term studio in other contexts, such as studio teaching, studio design projects and simply, the studio. In this instance, studio teaching involved one-on-one or small-group tutoring, which makes it resource intensive. The "design studio" is often used and McClean (2009) defines it as:

A learning setting in which architectural design is learned, typically characterised by a socially interactive environment in which drawing, modelling and discourse takes place (McClean, 2009, p. xvi).

McClean later expands the definition by stating the design studio is "at once an activity, an environment and a culture" (McClean, 2009, p. 2). However, in the UK this traditional model is evolving in response to reduced resources and being challenged. For example, a theme reported on by Vowles et al. (2012) focuses on the effects of space and budget pressures, the changing student population and online technologies, on studio learning and teaching. Vowles's report identifies that senior academics and students associate access to a studio place and studio culture as supporting undergraduates to understand the design process (Vowles, Low, & Doron, 2012, p. 46). There is also the perception, by staff, that students who engage in the studio are more likely to perform better than those who do not.

It is less clear how the studio is understood in the USA. There the emphasis in policy documents is on studio culture and ensuring that a positive environment is fostered (AIAS, 2008; Koch, Schwennsen, Dutton, & Smith, 2002; NAAB, 2009) to allow students to learn. These USA examples make reference to pedagogy through the identification of
culture and environment but not to teaching methods. The accreditation process in the USA requires that schools develop a studio culture policy to ensure the role of the studio is more explicit, but this process could potentially restrict the studio to traditional roles (AIAS, 2008; NAAB, 2009). The topic of studio culture and the effectiveness of design instruction are often revisited in the USA (Anthony, 1991; Bachman & Bachman 2006; Beinart, 1981a & b; Dinham, 1987 & 1989; Dutton, 1991; Ochsner, 2000; Porter & Kilbridge, 1981; Schön, 1983). However, Salama (2015) argues that despite the attention on the studio and design teaching, greater scrutiny and renewal is required now as many traditional aspects continue to be used, even though significant changes are occurring in professional practice.

At the international level, the Charter for Architecture Education provides a framework to connect architectural education internationally as well as offering a means by which to develop and protect architectural education and the profession (UNESCO/UIA, 2011, p. 6). The authors of this report were the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Union of Architects (UIA). The use of the term studio in this report is found in the “conditions and requirements” for adequate studio facilities, design studio teaching methodology and compatible SSR to allow design studio teaching (UNESCO/UIA, 2011, p. 5). The Charter has evolved since its inception in 1996 and it is interesting to note that in the 2002 edition, there are no specific references to the term studio, but it does describe the need for teaching to be project based (UNESCO/UIA, 2002, v3.5). The report further suggests that project-based teaching requires regular intervention by the teacher during the project to facilitate the “synthesis of knowledge, aptitudes and attitudes” (UNESCO/UIA, 2002, v3.5). In addition, the SSR needs to be at a level that ensures the “quality and frequency of personalised project supervision” (UNESCO/UIA, 2002, v3.6). The rationale for omitting the term studio is unexplained but perhaps this allowed for a broader interpretation of requirements by individual countries? Its reinstatement into the Charter may reflect the pressure experienced by schools to maintain the studio. Whatever the explanation, the example of the Charter provides evidence that variations exist in the ways the studio is described in both architectural education and profession.

From these studio definitions and the use of the term studio in Australasia, UK, USA and the Charter, it is clear that the studio concept does vary and is adaptable. The studio concept may represent the place, culture, teaching approaches and part of the curriculum that are connected to design learning and teaching. However, these definitions and applications do not indicate clearly, or in any detail, the studio forms,
especially with the diversity in the learning and teaching spaces utilised. The studio concept and forms are investigated in Chapter 2, which considers in more detail the variants and changes occurring in studio in the architecture education domain.

1.1.2 Origins of the studio in architectural education

To better understand the studio, its form and concept, currently existing in architectural education, consideration of its origins and adaptation over time is important. In this section a brief overview of the concept of studio is offered for the purpose of setting the scene for what follows in this dissertation.

The studio emerged during the Italian Renaissance period (Beinart, 1981b; Cunningham, 1979) but prior to this knowledge and experience was typically passed on from father to son (Kostof, 1977a, pp. 3–4). Early references to the term architect described an involvement in architecture, building, engineering, planning and/or surveying in ancient civilisations. Over time the admission to architectural “practice” of others outside these families occurred, while the process of learning remained a combination of copying and experience. The “apprenticeship” model dominated Europe during the Middle Ages, the Renaissance and the Medieval periods. In the Middle Ages, the term “architectus” was rarely used, and instead references were made to the mason (Kostof, 1977, p. 60). Kostof highlights that the term mason or master-builder did reflect a craft or building skill but also included the conception of the design, supervision of the project and working alongside the building crew (1977, pp. 60–61).

During the Renaissance period, architects also arose from a multiplicity of backgrounds and experiences, not only limited to an apprenticeship. For example, da Vinci was recognised as a painter, an architect, a scientist, an inventor and more (Cunningham, 1979, p. 134).

The origins of the studio emerged during the Italian Renaissance period during which time academies were set up for teaching art and architecture (Beinart, 1981b; Cunningham, 1979). In these studios architecture students were taught to design by copying appropriate precedents and building types (Brawne, 2003, p. 165). The first “recognisable” course in architecture was at the École des Beaux-Arts school in Paris in 1819 (Caragonne, 1996, p. 47; Vidler, 2004, p. 17). It drew from the academies for its curriculum, the role of the studio and the need to teach design. This model, which became commonly understood as the Beaux Arts model, is described below. It was widely adapted in the establishment of USA schools of architecture after 1865, implemented into the UK (1894), and subsequently in Australia (1907) and New
Zealand (1918) (McEwan, 1999, p. 7; Ostwald & Williams, 2008a, p. 12; Pfammatter, 2000, pp. 287–288; Powers, 1993, p. 33). With the adaptation of the Beaux Arts model, particularly into the American setting, the studio’s position moved from outside the institution to being accommodated within the campus facilities (Crouch, 2002; McEwan, 1999; Willis, 2004).

Prior to architectural education being formalised and located within higher education, architecture was typically learnt through copying and experience via pupillage with a practising architect or an apprenticeship (Crinson & Lubbock, 1994, p. 22; Ostwald & Williams, 2008a, p. 8). The demand for more “specialist trained” and identifiable architects arose during the periods of the French and American Industrial Revolutions, leading to a change in architectural education and the founding of the profession (Pfammatter, 2000, p. 17; Wilton-Ely, 1977, p. 193). The significant educational change involved the formalisation of courses and the inclusion of design into the curriculum, where it was now taught to architecture students rather than relying on experience. Design had not previously been taught in the pupillage or apprenticeship system where it was assumed to be a by-product learnt from the experience of drawing architecturally and understanding how buildings were constructed. In the post-revolution system, design gained a new prominence as it distinguished the services and skills provided by the architect from those of the engineer or surveyor who may well have also practised as architects.

1.1.2.1 The Beaux Arts model and the studio

Design was central to the Beaux Arts curriculum and the design problem became the vehicle for learning in the studio (or known in French as the atelier)(Bosworth & Jones, 1932, pp. 7 & 9). In the Beaux Arts model, students would work in the studio during the day on a design problem set by the “school” and receive tutelage from the studio master, an invited architect, in the evening (Ostwald & Williams, 2008a, p. 9). The format emphasised learning from set theoretical projects and supplementary lectures were provided in other parts of the curriculum (Cross, 2006, p. 24; Webster, 2005, p. 265). The curriculum typically contained “construction, lettering, orders, measured drawings, composition and the study of typology and decorum, history, perspective, skiagraphy, and sketching” (Crinson & Lubbock, 1994, p. 5). At the time the Beaux Arts model was thought a radical departure from the pupillage/apprenticeship system (Ostwald & Williams, 2008a, p. 19).
The Polytechnic model developed in parallel with that of the Beaux Arts. This was adopted throughout the European continent and the USA at the beginning of the 19th century and later in the UK (Pfammatter, 2000, p. 17). The Polytechnic model had an overriding philosophy that the “the acts of knowing and doing” are co-dependent (Pfammatter, 2000, p. 307). This system’s emphasis was on the application of theory to practice in an applied science education. Teaching methods used in polytechnics were lectures, exercises, examinations and physical workshop classes. The differences between the Beaux Arts model and the Polytechnic model reflect the debates taking place with respect to the role and skills required by an architect.

Irrespective of this debate, higher education institutions deferred the inclusion of architecture and other professions at the end of the 19th century and start of the 20th century as they believed it instilled knowledge and habit rather than the creation of theory (Powers, 1993, p. 33; Veblen, 1918 in Schön, 1983, p. 35). The dominant philosophies held by universities at that time were Positivism (knowledge generated by empirical studies) and the scientific method. Practices connected with craft and artistry were considered subjective, lower in learning status and unscientific (Schön, 1983, p. 34). Eventually, the attraction of appropriating “useful knowledge” into the university domain outweighed these concerns and more full-time architectural courses were offered in universities (Schön, 1983, p. 36). The Beaux Arts model was deemed to be more attractive than the Polytechnic model as it relied on paper-based studies and not workshop-based learning, therefore, reinforcing the studio as the place to learn and communicate design through drawings (Green & Bonollo, 2003, p. 270). This aligned with the prevailing belief of the profession on how architecture should be taught and universities’ desire to be distanced from physical labour and training (Crinson & Lubbock, 1994, pp. 74–75; Powers, 1993, p. 35). Pupillage (practical work experience) would continue after this, but much reduced in its importance.

1.1.2.2 The Bauhaus

The dominance of the Beaux Arts model in architectural education was gradually superseded by the Bauhaus School (German school, 1919–1933) and Modernism (Anthony, 1991, p. 10). From the 1930s to the 1960s most architecture programs in the UK and USA shifted from a variation of the Beaux Arts model to being more closely aligned with the values and methods of the Bauhaus and Modernism (Lubbock & Crinson, 1993, p. 49). The displacement of the Beaux Arts model meant a significant change in the approach to design and design education, however the importance of the
studio environment and the use of projects and critique to teach architectural design remained (Crinson & Lubbock, 1994, p. 159).

A new approach to generating solutions through experimentation and exploration of materials, patterns and design was attributed to the Bauhaus (Cross, 2006, p. 24; see also Brawne, 2003). This model provided new freedom to respond to the age of technology and social changes without the constraints of past architectural styles (Caragonne, 1996, p. 51). This development reflected the goal of Modernism, which was to generate "an architecture conscious of its own modernity and striving for change" (Colquhoun, 2002, p. 9). Learning in this system began with the immediate resolution of "radical objectives and pragmatic limitations" (Markus, 1975 cited in Beinart, 1981b, p. 168). Technical skills were not systematically learnt; they were discovered by undertaking experiments and proposing design solutions, which some critics considered problematic (Bannister, 1954 cited in Beinart, 1981b). Some of these ideas and principles were also embraced because they aligned more closely with trends in university-based education, including the scientific/problem method. However, the way in which schools of architecture accepted the Bauhaus model was more as a catalyst for educational reform than a close adoption, as it was fragmented and sometimes misrepresented (Crinson & Lubbock, 1994, p. 91; Hochman, 1997, p. 267). The ideals commonly adopted from the Bauhaus model were the general design foundation units and the staging of an education from the more general to a specialist's background. This was sometimes referred to as the "pre-architecture" course (Vidler, 2004, p. 18). Mies van der Rohe explained that he believed "the tremendous influence which the Bauhaus had on every progressive school in the world lies in the fact that it was an idea" (cited in Hirschfeld-Mack, 1963, p. 8).

1.1.2.3 The “official” system and links to Australasia

Crinson and Lubbock argued in 1994, that architectural education had not greatly changed since the acknowledgment of the “official” system in 1958 by the Commonwealth countries and the USA schools in attendance. Rather, the curricula and accepted styles responded to shifts in technology and societal values (Crinson & Lubbock, 1994, pp. 162, 165). The “official” system defined the eligibility requirements for professional registration as being five years study at a recognised university/college-based course and two years practical experience in a recognised architect's practice (Lubbock & Crinson, 1993, p. 49). Crinson and Lubbock believed that architectural education "is a process of professional initiation which prepares the student for membership in the particular architectural community" (1994, p. 167) and
asserted that this was the reason for the studio remaining paramount, its existence being to ensure students become part of the architectural community, knowledge and culture.

Salama (2015) broadly supports Crinson’s and Lubbock’s characterisation as he states that learning and teaching methods are largely unresponsive to developments in information and communication technology (ICT) and the practice of architecture. Other recent works on architectural education (Spiller & Clear, 2014) and the design studio (Bates et al., 2015) indicate the need for programs to also reflect contemporary practice, design research and technology. However, their focus is principally on the subject matter and outcomes and omits their response to restrictive conditions in higher education and how these may be in part ameliorated through learning and teaching methods.

It is from this background of the studio origins and its developments that the models adapted in the UK and the USA informed architectural education in Australasia. In summary, architectural education began with self-teaching (books, travel) and being articled to a recognised "architect", to the development of informal and supplementary evening classes at Schools of Art or Mechanics Institutes, and finally the transition from part-time to full-time courses at universities/colleges (Freeland, 1971; McEwan, 1999). Prior to the advent of university-based education some New Zealand students studied by correspondence from the USA (McEwan, 1999, p. 9), providing a historical precedent to contemporary debates concerning online courses.

The Beaux Arts model influenced the first university-based courses offered in Sydney, Melbourne and Auckland (Freeland, 1971; McEwan, 1999; Willis, 2004) with the Chairs of Sydney and Auckland attending Beaux Arts courses. For example, most of the teaching staff in Auckland had studied abroad or by correspondence in the Beaux Arts. However, alterations were made to the University of Sydney course in 1926 in direct response to complaints about students educated in the Beaux Arts model lacking construction/science knowledge (Freeland, 1971, p. 220). Willis (2004) credits the Melbourne University Architectural Atelier in promoting a significant shift from learning design as an articled apprentice to the university environment in Australia (p. 54). In its first variation, the Melbourne University Architectural Atelier (1919–1947) operated like a finishing school (Willis, 2004, p. 47), later it became a central component of the curriculum. Despite the Beaux Arts approach at Melbourne
University, Willis identified examples of the trend to Moderne which emphasised the technical and functionalism in students’ designs in the mid-1920s (Willis, 2004, p. 51).

By the end of the 1960s there were 14 schools of architecture in Australia and at least half of these were located within universities (Freeland, 1971, p. 228). In 1987 there were 4035 full-time students enrolled in Australia, New Zealand and Papua New Guinea (Freeland, 1971, p. 228; Ostwald & Williams, 2008a, p. 104). In 2006 there were more than 7509 students studying architecture in 20 schools of architecture in the Oceania region, nearly doubling the 1987 number (Ostwald & Williams, 2008a, p. 108). According to Ostwald and Williams (2008a) the tradition of the Beaux Arts studio model and the use of the desk crit in Australasia, ceased in the 20th century (p. 19), although some resemblances still exist in one-on-one tutoring or dedicated studio facilities. The decline of the Beaux Arts model was largely attributed to rapid expansion of student enrolments into architectural programs and the reduction of resources for staffing and facilities, as a consequence of changes to government policies. Ostwald and Williams (2008b) identified that school claims for better resourcing and facilities were largely unsupported beyond the legacy of practice and were viewed more as persuasive rhetoric. Instead, the discipline was required to undertake an overarching examination in order to make compelling and evidence-based claims for ongoing intensive resourcing and facilities (2008b, p. 36). This was a challenge that was echoed by the National Forum on Studio Teaching in Sydney in 2007 on how to best ensure and create “quality educational experience for their students in the context of limited resources” (Forsyth et al., 2007, p. 4).

This overview of the origins of the studio in architectural education indicates the prominence and longevity of the studio since the formalisation of architectural education and its inclusion into higher education. The key role of the studio in architectural education has remained, even though the Beaux Arts model, which introduced the studio, was overtaken by the Bauhaus and Modernism models which were themselves later rejected due to the need to respond to social and environmental concerns (Salama, 2015, p.113–114). Salama (2015) provides an overview of these different models and explains why multiple interpretations and adaptations occurred in response to different demands and contexts. Over time the studio concept and forms represented more than a physical place and became amorphous, including the environment and design pedagogy. This indicates that the studio concept and its forms have evolved since its inclusion in the Beaux Arts model and through the influence of
the Bauhaus model and other responses to the changing role of the architect and practice.

The majority of these variations would have been understood or referred to as the studio, which accounts for the diversity and the dilution of its original form as a physical place for students to “own” and within which to work and have discussions with their studio master. These issues are examined in greater detail in Chapter 2 through the themes of the studio as a place, culture, teaching methods and the curriculum. The question remains as to the level of diversification and whether there is a difference developing in Australasian schools which is a concern (AIA, 2008a; Ostwald & Williams, 2008a). Further, what are the implications for schools with the existence of diversification where some studio forms are more cost effective than others? There are still many questions that remain unanswered about the studio concept and its forms.

1.1.3 The studio in disciplines other than architecture

The final comparison of the studio concept and forms in architectural education is through consideration of other disciplines that utilise the studio as a major part of their curriculum. The disciplines examined hereafter (engineering, planning and visual arts) have emerged from similar educational origins to architecture that either includes the academy model or pupillage. There are many commonalities identified between the disciplines, as well as differences from the descriptions (Bosman & Dedekorkut-Howes, 2014; Higgins, Aitken-Rose, & Dixon, 2009; McKenna Salazar, 2013; Reidsema & Goldsmith, 2011; Tippett, Connelly, & How, 2011; Vella, Osborne, Mayere, & Baker, 2014; Young & Hallström, 2007; Zimmerman, 2009). The section concludes with other disciplines such as physics, biology, computing, entrepreneurship and education that make reference to the studio.

For architecture, engineering and planning disciplines, the purpose of the studio-like model is to develop students’ ability to act and think like a practitioner/professional when responding to questions or problems. For engineering and planning, the studio-like model provides opportunities to learn how to consider, critically reflect on and resolve “ill-defined”, “wicked” and complex problems through design. It demands that students integrate different domains of knowledge and processes, address interdisciplinary perspectives, as well as consider issues of social justice, environment and community values (Baillie & Armstrong, 2013; Bosman & Dedekorkut-Howes,
The focus of the studio model in visual arts differs to that of engineering and planning as it results in creative self-expression and provokes the viewer or participant (Zimmerman, 2009). However the role of "generating solutions to real life problems both now and in the future" is evolving within visual arts education (Zimmerman, 2009, p. 394).

The commonality between the disciplines (architecture, engineering, planning and the visual arts) is that the studio is understood as a general concept characterised by its learning and teaching approach of using regular interactive design discussions/reviews amongst small groups, workshops and working sessions. Through this process students gain support to understand and recognise the gaps in their knowledge and practices during class time, and this process can continue informally with peers outside of class.

The type of physical space used in studio teaching differs significantly both within and between the disciplines. It ranges from a conventional timetabled university classroom or computer laboratory to a dedicated place where students can work during class or spaces are offered and "owned" by students for project work, outside of class time. There is a preference in planning and engineering disciplines for a space that allows for both individual and working groups, in and outside of class time, that allows a variety of media and tests to readily occur (Reidsema & Goldsmith, 2011; Vella et al., 2014). A common objective is to create a culture or environment where peer support and creative learning occurs, irrespective of the physical or even virtual space. Finally, the studio concept is understood by its role in the curriculum to learn design and is fundamental to architecture and visual arts, whereas it is an option or blended approach in planning and engineering. Students have reported troubles with the studio approach when it only forms a small part of their curriculum and learning experiences as it then becomes unfamiliar (Reidsema & Goldsmith, 2011; Vella et al., 2014).

A key difference is the use of the term studio in engineering scholarship. It is not readily recognised, instead a variety of other terms are used to represent models like the studio. For example, there is a significant trend to reform engineering education through the adoption of the Conceive, Design, Implement, and Operate (CDIO, 2015) initiative, commonly referred to as CDIO (Foley & Willis, 2015; Reidsema & Goldsmith, 2011; Shallcross, Maynard, & Dalvean, 2011). Its origins began from an MIT, Boeing and Swedish collaboration that evolved worldwide with the objective of readdressing the balance between engineering science and practice (CDIO, 2015). The CDIO model encourages the development of design skills across the curriculum. This differs from
the curriculum model of a science foundation prior to applying this knowledge in a specific design unit at the end of the course (CDIO, 2015; Young & Hallström, 2007). Studio facilities in the architectural studio are described in the CDIO model as workspaces and desirable attributes include students managing the workspace that is flexible in nature, accessible in and out of class time and well equipped (Young & Hallström, 2007, p. 107). The main challenges identified in Australian engineering programs are the lack of integration between theoretical lecture-based units and design units, and the barriers are largely "pedagogical, institutional and epistemological" (Reidsema & Goldsmith, 2011, p. 9). However, there is a willingness to incorporate and boost design activities in the curriculum (Foley & Willis, 2015; Reidsema & Goldsmith, 2011; Shallcross et al., 2011).

Before concluding this section on studio meanings it is important to acknowledge that other disciplines such as physics, biology, computing, entrepreneurship and education make reference to the studio. However they may only exhibit one or two studio characteristics and perform a small role. For example it was found that the term "studio classrooms" evolved from the physics discipline that wanted to adopt an active learning pedagogy that accommodated teaching large groups of students but which did not rely on the lecture/tutorial model. These studio classrooms are similar to the spaces used for the Student-Centred Activities for Large-Enrollment Undergraduate Programs (SCALE-UP) (Beichner et al., 2000) and Technology-Enabled Active Learning (TEAL) (Dori, 2004) in the engineering discipline in the US. These spaces allow students to work in groups with the provision of flexible tables that allow wireless laptops to connect to digital projectors and sufficient wall/pin-up space for recording ideas (Taylor, 2009). The teaching station is often mobile to ensure that the front of the space for teaching cannot be fixed and to promote alternative instructional methods that are less didactic and hierarchical in nature. From personal observations of contemporary educational buildings in Australasian universities, this type of flexible studio classroom is apparent and visibly marketed. The studio classroom as described above signifies a middle territory between the traditional studio places and the convention of lectures and tutorials.

It is apparent from the scholarly research of architecture (Borden et al., 2010; McClean, 2009; Ostwald & Williams, 2008a & b; Salama, 2015; Spiller & Clear, 2014; Vowles et al., 2012; Webster, 2004, 2005, 2007, 2008; Zehner et al., 2009) and the other disciplines (Bosman & Dedekorkut-Howes, 2014; Higgins et al., 2009; McKenna Salazar, 2013; Reidsema & Goldsmith, 2011; Tippett, Connelly, & How, 2011; Vella et al., 2014;
Young & Hallström, 2007; Zimmerman 2009) that there were minimal references to each other except for the planning discipline. This suggests that there are missed opportunities to draw on and build from each discipline’s work that make for more compelling evidence. It is also interesting that the engineering discipline has tended to avoid the term studio. What is common between these disciplines is a renewed interest to define and research the studio concept or equivalent in the case of engineering, to either maintain, introduce, or expand its implementation. Furthermore there is the role that professional accreditation process can play. For example difficulties are being experienced in the planning discipline to incorporate or sustain the studio concept in programs and part of the problem is contrasting university policies on resources and group-based assessment (Bosman, Dedekorkut, & Dredge, 2012, p. 5; Németh & Long, 2012, p. 477; see also Vella et al., 2014). In summary, there is value in looking outside the discipline to recognise similarities and differences in the studio concept and its forms. In addition it reinforces the need to better understand the studio concept and the diversity of studio forms in architectural education in Australasia.

1.1.4 Conclusions from the studio context

Through reflecting on the context and definitions of the studio and its use in architectural education, both nationally and internationally, as well as the use of studio in disciplines other than architecture, it is apparent that the studio concept is multidimensional due to its broad application and attribute of adaptability. Its origins, associated with physical place, have assisted the enculturation process that has expanded to reflect the studio instruction, a project- or problem-based teaching model and a curriculum design and structure. The identity of the studio concept has become synonymous with architectural education and design teaching, a significant expansion from its origin of place. Hence the studio concept has become all encompassing, somewhat ambiguous and ubiquitous in its use.

Ostwald and Williams (2008a, p. 18) speculated on whether the rise of the term studio in the design curricula titles reflected an attempt by some schools to remain connected to the origins of the studio, even though studio facilities may no longer be accessible. What has become clear with the expansion of the studio concept and its forms is that it has become less articulated, and as a result more vulnerable and potentially less potent in a climate where resources are reduced, class sizes increased and an economy in teaching is required. In part, the Charter, the international framework established to protect architectural education, and the accreditation process in Australasia
accommodates studio diversity but also make it difficult to defend. Therefore, research is required here to understand in greater detail how the term studio is conceptualised in Australasia because inconsistencies exist, even though it is highly valued. This forms the basis for research question 1.

RQ1: How is the term “studio” conceptualised within architectural education in the Australasian context?

The use of conceptualise in RQ1 refers to the intent to understand the idea or meaning held, in particular the idea and meaning held within architectural education in the context of higher education in Australasia. The focus of this question is over the period of 2007 to 2010. This period encompasses the data collection and findings of Ostwald & Williams’s research (2008a & b) to the subsequent research conducted for this dissertation in response to a few unanswered questions about the studio.

In addition to RQ1, understanding the factors that have led to the diversity of studio models in Australasia and its relationship to the term studio is important since many references are found that indicate that the studio concept and its forms are at risk due to government policies and funding. Universities are responding differently to government policies and funding influencing the form of architectural programs and their studios (AIA, 2008a; Bosman & Dedekorkut-Howes, 2014; Forsyth et al., 2007; Higgins et al., 2009; McClean, 2009; McKenna Salazar, 2013; Ostwald & Williams, 2008a; Reidsema & Goldsmith, 2011; Tippett et al., 2011; Vowles et al., 2012; Vella et al., 2014; Young & Hallström, 2007; Zehner et al., 2009). Furthermore, architectural programs are also responding in many different ways to their institutional climate. Therefore, research question 2 responds to these gaps in knowledge by examining:

RQ2: What are the factors that have led to the diversity of studio models in Australasia?

The aim of this question is to develop and understand studio models and their characteristics from investigating the extent of studio forms in operation at the end of the 2000s. By establishing this knowledge, the question remains: what are the implications from having such diversity for the studio in architectural education in Australasia? This is a particularly important question as the studio is considered under threat in the current climate and there are concerns for its future. Hence the form of research question 3 is to understand the possible future outcomes.
RQ3:  What are the implications that arise from having the diversity of the studio models?

This concludes the process adopted in this dissertation to understand the studio context and where the knowledge gaps exist in the studio in architectural education in Australasia. The notion of a universal studio concept and its form is not unique to Australasia or to the discipline of architecture. Therefore, the findings to these questions may contribute to larger debates. Before investigating the research questions above, the extent of studio forms is explored. This occurs in Chapter 2 where the main characteristics of the studio as a place, culture, teaching methods and the curriculum are examined.

1.2 The higher education climate and studio in the 2000s

The following section provides insight into the changes occurring to the studio in response to the higher education climate. It does this by examining the broader context of higher education and the resulting three main trends that are having an impact on architecture schools and other disciplines. As stated at the start of the chapter, profound and constant change is occurring in higher education (Altbach et al., 2009; Barber et al., 2013; Coaldrake & Stedman, 2016; Davis & Farrell, 2016; Ernst & Young, 2012; Goedegebuure et al., 2008; OECD, 2010) and it is within this context that architectural education exists. It is these changes that are most likely contributing to the studio being identified as at greatest risk and a challenge being faced by schools of architecture since 2007 (Ostwald & Williams, 2008a, p. 147; Ostwald & Williams, 2008b, p. 34). Pockets of evidence indicate that some UK schools of architecture (McClean, 2009; Leon, 2004; Vowles et al., 2012) are experiencing similar concerns of reduced resources and increased student enrolments. Evidence is also found amongst disciplines (engineering, planning and visual arts) other than architecture (Bosman & Dedekorkut-Howes, 2014; Higgins et al., 2009; McKenna Salazar, 2013; Reidsema & Goldsmith, 2011; Tippett et al., 2011; Vella et al., 2014; Young & Hallström, 2007). This indicates that resourcing problems and increased student populations is not unique to schools of architecture in Australasia but is a response to the higher education climate. It is the responses from the individual schools and the implications of their responses that are not fully understood.

A better understanding of the problems of resources and enrolments for the studio in Australasia requires a better knowledge of the higher education climate. The
Immediate threats to the studio are the reduction of resources and facilities and increased student enrolments. However, it is evident that these threats to schools, and the form of studio they implement, vary according to the university's response to the higher education climate in which they are situated and which includes government policies. Hence this section on the higher education climate in the 2000s continues to address the studio problem in Australasia in its context. This is achieved by exploring the global trends in higher education and the context in Australasia. It also identifies potential implications for the architectural studio that can be later tested in this study.

Higher education systems are amongst the “most ‘globalised’ of institutions” (Marginson & Considine, 2000, pp. 8, 12) and have become “competitive enterprise[s]” in the 21st century for status, students, and funding from public and private sources (Altbach et al., 2009, p. iv). Concern exists that the financial imperatives of higher education institutions (HEIs) may outweigh the priorities of education and scholarship (Marginson & Considine, 2000, pp. 8, 12). In a report commissioned by UNESCO on Trends in the Global Higher Education (Altbach et al., 2009, p. iv) it was found that the impacts of globalisation and massification, amongst others, are beyond the control of HEIs. However HEIs vary in response and influence according to “nation-state” (Scott, 2011) social, economic and political drivers (Marginson, 2016, pp. 264, 266).

The impacts from globalisation refer to the global context where economics and the new information and communications technology (ICT) have formed networks that significantly influence and link communities and knowledge (Altbach et al., 2009, pp. iii, iv). Universities no longer just operate within their country but compete for international standing as evidenced by international league tables (Times Higher Education rankings, QS World university rankings, Academic Ranking of World Universities). As a consequence of globalisation English is the dominant and preferred language of communication (Altbach et al., 2009; Marginson, 2009). The global demand for HEIs has also seen the rise of private providers who represent some 30% of the total. The percentage of private providers of HEIs are averaging over 50% in certain countries such as Japan, Republic of Korea, Brazil, Chile and Mexico (Altbach et al., 2009, p. 18).

The term “massification” or mass higher education is not a new trend as it first emerged after the Second World War, but became a “defining feature” of universities at the turn of the 21st century (Guri-Rosenblit, Sebkova, & Teichler, 2007, p. 1). The argument for massification follows the needs of both developed and developing nations
for increased participation in higher education, leading to greater economic prosperity (Gurría, 2010; see also Altbach et al., 2009). The trend towards massification is still providing challenges to universities as they facilitate and absorb increased demand for education whilst remaining cost effective (Guri-Rosenblit et al., 2007, pp. 1–2). These challenges also have different implications for different countries as the higher education system and its providers vary immensely (Guri-Rosenblit et al., 2007, pp. 4–5; Marginson, 2016). According to Altbach et al. (2009) and others, the “deeper” implications for learning and teaching arising from massification are only just beginning to be understood (Beerkens-Soo & Vossensteyn, 2009; Hornsby & Osman, 2014; Kariwo, Gounko, & Nungu, 2014; King & James, 2013).

The most relevant implications from Altbach et al.’s (2009) report to this study on the studio concept and its form in Australasia are as follows. Academics are indicating that they are more stressed as they have lost authority and autonomy in higher education to managers and bureaucrats (Altbach et al., 2009, p. xv–xvi). This provides a greater context in which to understand the response by academic leaders to concerns towards the studio’s future in Australasia and the difficulties they experience in justifying long-held traditions in the discipline.

Another factor contributing to the Australasian context is increased student mobility and the demand for higher education that is taught in English (Altbach et al., 2009, pp. v, ix). Australian universities play a significant role in the provision of higher education for international students as such education was more affordable than in the USA and UK at the time of 2009, however, this has subsequently fluctuated with international exchange rates (Marginson, 2009). The Australian governments, and others such as the UK and Canada, have also implemented incentives for foreign students to study in their country such as the later prospects of work and residency (Marginson, 2009, p. 11). This has ultimately contributed to expansion in student enrolments in Australia and significantly to a few schools of architecture (AIA, 2013, p. 88). A similar intent is seen in New Zealand, however there has not been the same level of growth in international students, as enrolments have remained relatively consistent over the 2003–2012 period (ICEF Monitor, 2013).

A number of factors (commodification, massification, private providers, private good instead of public good) have contributed to the change in the financial model for higher education, as many governments can no longer afford free tuition or the levels of subsidy that existed previously (Altbach et al., 2009, p. xii). The repercussions on
higher education resulting from the Global Financial Crisis in 2008 involved "cost cutting", "cost sharing" and "freezes" on facilities, as well as improving libraries and updating technology (Altbach et al., 2009, p. xx). The implications are "overcrowded lecture halls; ..., less support for faculty research, deterioration of buildings, loss of secure faculty positions, faculty brain drain as the most talented faculty move abroad" (Altbach et al., 2009, p. xiii). The Altbach et al. (2009) report and Marginson’s (2016) research conclude that the trends of globalisation and massification are likely to continue, meaning the ongoing predicament of increased student enrolments and reduced resources. Both accept these trends due to their "public good", where a greater diversity of students will have access to higher education.

With this background of changes occurring in the higher education sector, the implications of these trends are further discussed in terms of the Australasian context and its schools of architecture, below. Two main themes are used to provide a better understanding of these trends and implications for the architecture schools of Australasia. The themes are the expansion of student enrolments and its impact on staff/student ratios and the quality assurance agenda.

1.2.1 Expansion in student enrolments and its impact on staff/student ratios

The expansion in student enrolments has impacted on the staff/student ratios (SSRs) as a consequence of successive Australian and New Zealand government policies since the late 1980s (AG, 2009; Goedegebuure et al., 2008; Marginson, 2009; Marginson, 2013; Ostwald & Williams, 2008a). This period of change saw student enrolments increase and fewer resources allocated for teaching, resulting in the transformation from the "elite universities into mass higher education"(Goedegebuure et al., 2008). Governments in Australasia responded by maintaining their proportion of funding to universities at the same level, but have allowed student enrolments to significantly expand. For example the funding for Australian universities remained relatively static at 1.5% of GDP from 1995 to 2007 (OECD, 2010, Annex3, Table B2.1) despite significant increases in student enrolments.

Evidence of these “forced” policies and rapid changes are evidenced by changed staff/student ratios. In 1990 the average SSR in Australian universities was 1:13, whereas in 2006 the ratio was 1:21 (AG, 2009, p. 15; Marginson, 2009). This is due to a combination of increased class sizes, reduced numbers of full-time academics, or a combination of both. The Australian Government acknowledged that the increasing
SSRs contributed to problems experienced with students’ engagement and international competitiveness (AG, 2009, p. 15). Another implication saw a reduction of contact hours as the semester length was reduced from 28 weeks per year to 24 weeks per year over the period of 1986 to 2006 (Ostwald & Williams, 2008a, p. 150).

Government policies also encouraged universities to cultivate private funding through full-fee-paying students, namely international students, industry-based research and philanthropic donations (Coaldrake & Stedman, 2016; Marginson, 2009; Marginson & Considine, 2000).

The impact on architecture schools in Australia was an increase in the average SSR of 1:24 (Ostwald & Williams, 2008a, p. 114), which is slightly elevated in comparison to the national average of 1:21 for all disciplines at universities (AG, 2009, p. 15). This result reflects the concerns expressed in schools of architecture about the pressures being experienced by increased student numbers and reduced resources (Ostwald & Williams, 2008b, p. 34). Another indicator of the funding pressure being experienced in Australian architecture schools was reported in a submission to the government from the Association of Architectural Schools in Australasia (AASA). It indicated the plight and the dependency of most schools on international full-fee-paying students (Ostwald, 2006, p. 2). International students represented 22% of those studying architecture in Australia in 2005 (RAIA, 2006, p. 78). In particular, four schools had more than 37% of international students studying, with one school at 45% (RAIA, 2006, p.78).

The higher education context in New Zealand shares many similarities with Australia in overall funding (1.5% of GDP) but relies less on international student revenue, focusing more on the up-skilling of minority groups (OECD, 2010, Annex3, Table B2.1; see also AG, 2009; ICEF Monitor, 2013; Marginson, 2009; TEC, 2012). It is more difficult to directly compare the higher education conditions as New Zealand includes universities, institutes of technology, polytechnics and wānanga within the tertiary system (TEC, 2012). However, it was found that the university workforce had become more like the institutes and polytechnics over the period of 2001–2011 in its part-time and casual teaching profile (Wensvoort, 2013). Significant increases in part-time and casual staff positions were for those being employed to teach or conduct research only. By doing this, universities could better manage the increased cost and proportion of academic staff who had become professors and senior lecturers. The focus of these senior academics was on research. Another difference between Australian and New Zealand universities has been the proportion of international students. New Zealand aims to increase its market share in education to international students in order to achieve
similar ratios to those evident in Australia (ICEF Monitor, 2013). For example, fewer international students were studying architecture in New Zealand at 14% when compared to 22% in Australia in 2005 (RAIA, 2006, pp. 63, 66, 71). At the end of 2012 a similar relationship existed with fewer international students studying in New Zealand at 10% compared to 27% in Australia (AIA, 2013, pp. 89–90).

These differences between Australia and New Zealand become more apparent when comparing the overall average SSR for schools of architecture. In 2006 New Zealand schools' SSR was calculated at 1:17 and in Australia the SSR was 1:24 (Ostwald & Williams, 2008a, p. 114). This is a significant difference, however SSRs are a guide only, as they typically take into account equivalent full-time staff and student places, whereas there is often a greater trend to employ casual or sessional staff at universities. Further, it is difficult to determine which full-time staff to include in calculations, as service teaching across disciplines has become the norm in response to the reduction of resources (Ostwald & Williams, 2008a).

The Australian Institute of Architects (AIA) recommends that the SSR be 1:17 (AIA, 2009, p. 2). This recommendation forms part of the policies observed in the accreditation process for both countries. This means that most New Zealand schools met the recommendation but a significant proportion of the Australian schools exceeded the recommendation, with an average SSR of 1:24 (Ostwald & Williams, 2008a, p. 114). These SSR comparisons pose a number of possible implications or problems for architecture schools in Australasia. The first implication is obvious, in that many schools in Australia are above the recommendation, so the question is: are there noticeable differences in the student outcomes? This is difficult to ascertain as schools only need to demonstrate the minimum competencies and standards in the accreditation process (ANZ_APAP, 2013). The other possible explanation is the proportion of part-time and casual staff being employed to teach students in Australia as compared to New Zealand. This may result in both positives and negatives for the students, depending on the experience and the abilities of the teacher in architectural practice or teaching.

Two additional questions raised by the 1:17 recommended benchmark are: how was this arrived at and does it matter? In the year 2006 no architecture program lost its accreditation even though some schools may have operated above the recommended SSR of 1:17.
In summary, this section has shown that architecture schools in Australasia have experienced expansion in student enrolments and reduced resources, as evidenced by the increasing SSRs. There is also a difference between the resourcing of Australian architecture schools compared to New Zealand schools. Moreover significant differences exist amongst Australian schools due to the percentage of international students, which brings both positives and negatives to a program.

1.2.2 The quality assurance agenda

Due to the globally competitive landscape in the provision of higher education, issues of quality and standing continue to grow in importance. This is made evident by the increased demands and protocols for quality assurance and regulation. Metrics have been introduced to be able to make comparisons between universities (Coaldrake & Stedman, 2016; Altbach et al., 2009, pp. x–xii; Marginson & Considine, 2000). With education being the third largest export industry in Australia (AG, 2009, p. 6) and the government contributing more than 40% of funding to universities (OECD, 2010), the government has argued for a higher level of quality assurance and metrics associated with learning and teaching, specifically quality. In response, universities in Australia identified the level of regulatory reporting required as a “burden”, with schools diverting funds from the core teaching and research responsibilities as a consequence (Maslen, 2013).

Another outcome of the demand for quality in higher education has been the trend for universities to take a more central oversight and management of learning and teaching (D’Andrea & Gosling, 2005) as a way to improve the quality of learning and teaching. This trend is evident in Northern America, Europe, Australia and Hong Kong (Altbach et al., 2009, p. 117). According to Biggs (2001) the introduction of the quality agenda can result in more effective learning and teaching especially if it forms part of a reflective process. Alternatively, a report on Global Trends in Higher Education contends that there is still little incentive for academics to develop their teaching skills and shortcuts are taken (Altbach et al., 2009, p. 117). They explain that the rewards for research performance still outweigh the development of teaching skills for academics. The intent of the metrics to improve quality in higher education is lauded, but ultimately quality can still be strategically evaded.

It is argued that greater learning and teaching skills are required in response to the massification trend, as massification leads to an expanse and inclusion of many different student groups (Altbach et al., 2009, p. 113). The “transmission” of knowledge
is no longer effective or engaging students in their learning, leading to students no
longer being perceived as students, but as consumers and customers of higher
education (Dee Fink, 2013; Kuhn, Ikenberry, Jankowski, Cain, Ewell, Hutchings, &
Kinzie, 2015; Tagg, 2003). Both Usher (2009) and Hockings et al. (2008) indicate that
the pedagogic approach needs to be re-examined for its effectiveness to engage a more
diverse student cohort in learning. The concept of consumerism also comes from
students and their sense of entitlement, because they are paying for their education
(White, 2007). Such observations are reported in architectural education where
academics believe students are more motivated by obtaining the qualification than by
learning (Fuller, Ostwald & Williams, 2009; Williams, Ostwald, & Wallis, 2009).

There has been relatively little research in response to quality assurance agendas and
centralised learning and teaching requirements being placed on design in architectural
education (Cook & Hawley, 2004). Reference to the negative effects being experienced
in Australia were made by van Schaik and Heneghan (2004) whose concerns centred
on the convergence of the curriculum and constraints on assessment methods (van
Schaik & Heneghan, 2004). These have significantly increased since that time and
involve the addition of Threshold Learning Outcomes (TLOs). The purpose of TLOs is to
allow the government’s quality assurance agency to ascertain whether minimum
performance levels have been met. It is unclear if this process will occur alongside or in
addition to current accreditation processes carried out by the “professional institutes
of architects, architect registration boards, and the AACA” (ANZ_APAP, 2013, p. 3). In
comparison it appears that the regulatory system in New Zealand has had a minimal
impact on architecture schools even though there is a long history of government-
required quality assurance (Goedegebuure et al., 2008).

Both the TLOs and the accreditation process principally focus on the assessment of
learning outcomes or national competencies and standards. The TLO relevant to design
requires a minimum of a reasoned argument and judgment evidenced in the design
solution/process (Savage, 2011). The TLO descriptors or process do not relate to the
studio concept and its form, such as the teaching methods or resources available, they
are based specifically on evidenced outcomes. In comparison the accreditation process
(ANZ_APAP, 2013) employed in Australasia is far more involved and documents
whether the NCSA have been met and how procedures comply with the AIA policy and
standards. Even so, schools report that the accreditation process is time consuming and
cost intensive to maintain standards. Schools are also neutral in their responses to
whether the accreditation process improves their curriculum or discourages diversity between schools (Ostwald & Williams, 2008a, p. 127).

It could be argued that neither quality assurance processes nor accreditation provides a framework that strongly supports the studio in architectural education. Furthermore, it could be argued that the loss of resources, particularly in Australia where some schools are above an SSR of 1:24, does not or does prevent the design competencies from being met? What is known is that schools are significantly concerned that the lack of resources and increased student enrolments are compromising their ability to teach design. The cost of preparing for quality assurance and accreditation processes diverts already restricted funds to maintain standards. In addition, there are doubts that these processes are assisting the maintenance of the studio concept and its form.

**1.2.3 Conclusions from the higher education climate and its implications for the studio in Australasia**

Pressures being applied to the studio in Australasia are related to changes occurring across the higher education landscape as a result of globalisation and massification. These trends are common to the Australian and New Zealand higher education systems but according to Altbach et al. (2009) the “deeper” implications are just beginning to be understood in learning and teaching. It is clear that these trends are changing the way that governments and universities respond to higher education through policies, resource management and quality assurance (AG, 2009; Altbach et al., 2009; Marginson, 2013; Wensvoort, 2012). The reduced resources and the rapid increase in student enrolments is a consequence of massification and the competition between universities (both public and private) for status, students, academics and research. It is more common for students to co-fund or pay their tuition fees, as it is considered unsustainable for governments to retain funding levels in response to the numbers of students enrolled in higher education. Also, many governments now believe that higher education is for personal gain, where previously it was understood as a benefit for the public good. Parallel to this, academics have lost their previous authority and autonomy in higher education in response to the business and quality assurance requirements which have led to centrally managed resources, facilities and policies (Altbach et al., 2009; Coaldrake & Stedman, 2016). This partly accounts for the concerns held in schools of architecture in Australia for the studio form and its existence as it is difficult to justify the greater costs associated with studio facilities and/or a teaching model relying on small-group teaching methods. This is exacerbated when academics report
issues with poor student engagement (Williams et al., 2009), making it more difficult to
implement studio-based teaching that relies on students learning from the peer group
and discussion. The justification for studio facilities relies on student engagement and
peer interaction for their effectiveness to work.

The quality assurance requirements appear to have had less influence on the studio
concept and form. In the study by Ostwald and Williams (2008a & b) academic
managers only identified the difficulty in justifying the resources so as to sustain the
studio concept in the current climate (Ostwald & Williams, 2008b, p. 34). The
accreditation process is understood as the principal form of quality assurance in
architecture schools, where it is thought that the accreditation process assists in
maintaining the NCSA (AACA, 2015) and the provision of architectural education but as
a consequence, as many have indicated, it significantly adds to workload and diversion
of funds (Ostwald & Williams, 2008a; Ostwald, Williams, & Fuller, 2009).

Overall, a gap exists in understanding the implications of the higher education climate
on the studio in architectural education. The problem is often referenced in Australasia
but seldom explored in detail to identify the “deeper” implications occurring to learning
and teaching. This is important to consider as the design studio represents the greatest
proportion of the curriculum of architecture programs. For these reasons a study
focusing on studio concepts and forms that exist in the recent higher education context
in Australasia will have significant implications for architectural education.

Furthermore, such a study will provide an opportunity to reveal the conditions in
Australasian universities and uncover implications and insights for other disciplines.

Hence, the development of research question 4.

RQ4: What does the focus on the studio reveal about architecture education and its
conditions in Australasian universities?

This question draws together the responses from the earlier research questions (RQ1–3)
regarding the impacts that the higher education context has had on the studio
concept and form. The four research questions are discussed further in the research
methodology chapter (see section 3.1), including explanation of how these questions
were investigated. The next section outlines the organisation of this dissertation and
the approach taken to the study.
1.3 Outline of the dissertation

The research and its findings are reported in six chapters, each of which documents a different aspect of the study. The research was conducted in a part-time capacity and the data on the studio were gathered between mid-2007 and the start of 2011.

The first chapter has introduced the problem of understanding the concept of studio when various studio concepts and forms exist in architectural education. A particular consideration is that the studio has been identified as not only being at risk in Australasia but also with a challenged future. The research focuses on the impact of the higher education climate and its implications for existing studio models and consequently architectural education. This chapter has reported that the studio concept is both highly valued and yet generally requires greater resources than conventional lectures and tutorials as well as more specialist spaces. It also reported a diversity of studio concepts, which may encompass themes of place, culture, teaching methods and curriculum.

Chapter 2 investigates, in more detail, what is understood about the studio concept and form using the themes of the studio as a place, culture, teaching methods and curriculum (by examining the studio literature in architectural education). It both indicates the different conceptions of the studio and its forms despite the belief that a shared understanding exists. It also indicates that change is taking place in design teaching as a consequence of increased class sizes and reduced resources.

Chapter 3 outlines the rationale for a mixed methods research approach and the application of a two-staged approach to the resolution of the research questions. The first stage involves the secondary analysis of the Australasian studio data collected by Ostwald and Williams’s (2007a & b) research team. It includes all 19 schools of architecture that teach accredited programs (Ostwald & Williams, 2008a). The findings from the first stage contribute to stage two by identifying a purposeful sample that captures the main studio variations and differences in school profiles (AIA, 2008b). The two-staged approach also allows for a finer grained study through developing an understanding of the Australasian studio trends. The primary data involve academic interviews supported by the secondary strategy of the analysis of unit outlines and associated materials, school profiles data (AIA, 2008b; AIA, 2015) status of program accreditation (AACA, 2015), as well as targeted observation of school facilities and their use. A qualitative content analysis method (Julien, 2008) was applied for the coding process as it was evident that the themes emerging reflected a learning and teaching
framework. Hence, Biggs’s (2003) framework for constructive alignment for quality learning and teaching, a recognised and validated framework (Spencer, Ritchie, & O’Connor, 2003), was adopted. The methods to achieve rigour and trustworthiness are discussed in detail as, in qualitative data, multiple truths may exist where some are more credible than others by fair representation (Rubin & Rubin, 2005; see also Ezzy, 2002; Woods, 1999).

The results of the study are analysed and reported in Chapter 4 in two stages. Stage one outlines the studio trends occurring from the Australasia data in relation to teaching methods, the physical place of the studio and the curriculum. Evidence indicates that changes are occurring in response to restricted resources and poorer student engagement in a sizable proportion of schools. The results confirm that New Zealand schools at the time of data collection in 2007 were better resourced than Australian schools. Stage two presents the purposeful sample and indicates the diversity occurring according to Biggs’s (2003) adapted framework. It becomes clear that the institutional climate is having significant influence on the other theme areas of curriculum, environment, teaching methods and assessment. The discussion of these results form the basis of Chapter 5. Links are made to the findings and the literature review where the implications are drawn from various studio models, including the accreditation process. It shows that the studio concepts and their forms are transforming in response to the higher education climate.

The final chapter, Chapter 6, concludes with responses to the study’s research questions. The study’s findings are drawn together. The conception of the term studio, a studio model framework, the contribution of studio facilities in learning, the future role of the accreditation process and discipline-based teaching methods are described in the Australasian context. Future research opportunities are presented.

1.4 Chapter summary

This chapter has established that there is a need to better understand the architecture studio as it exists and to consider what its future is in Australasia. This is in response to academic leaders’ identifying that the studio is under threat in the current higher education climate, where student enrolments have increased and resources have been reduced (Ostwald & Williams, 2008b, p. 34), due to government policies, forcing massification. The current accreditation process and other quality assurance processes are also unlikely to ameliorate the threat to the studio. The significance of the focus on
the studio is that the design studio represents the greatest proportion of the curriculum and its resources (Crinson & Lubbock, 1994; Groat & Ahrentzen, 1996; Ostwald & Williams, 2008a; Porter & Kilbridge, 1981a; Salama & Wilkinson, 2007). This results in a studio conundrum in Australasia. The following chapter discusses the review of the studio literature in architectural education by looking more closely at its concept as a place, culture, teaching approach and curriculum. The intent is to investigate existing studio knowledge as it has evolved and adapted over time and in different contexts to inform the data collection process.
2 The studio concept

Chapter 1 established the need to have a better understanding of the architecture studio in Australasia, as it existed in 2007. It examined the studio context in relation to the changing higher education landscape. The notion that the architectural studio is at risk in Australasia is problematic. It is problematic as multiple interpretations exist about the studio concept and its forms and the use of the term studio is often ubiquitous or even ambiguous. These conditions reflect the legacy of the studio in architectural education and the implications arising from global competitiveness in a mass higher education system. Further the tacit approaches to the studio concept in architectural education inhibits a complete understanding of what the studio represents and how each of its different forms are being challenged. At the time of this study (2007–2011), it would be difficult to research and mount an argument for the benefits of the studio concept in architectural education because of this ambiguity. Hence, the objective of the research questions (RQ1–4) is to advance understanding of the studio within architectural education in Australasia. The intent of this chapter is to examine the studio concept and to understand its various forms according to place, culture, teaching approach and curriculum. This will provide a base from which to better inform the research design and with which to compare the results of this Australasian study.

For the purpose of this dissertation, references made to the studio are understood in the context of architectural education. As stated in Chapter 1, the studio concept in architectural education emerged at the time that the professions of architecture, engineering and surveying were being formalised (Brawne, 2003; Caragonne, 1996; Crinson & Lubbock, 1994; Pfammatter, 2000; Wilton-Ely, 1977). The characteristics that came to differentiate architects from their competitors were their design knowledge and skills. Hence the elevation of design and its identification with architects was echoed and adapted into the formal education of architects through the studio concept. The sustained prominence of design, within architecture education, has contributed to the ongoing role and status afforded to the studio concept, as it is related to teaching design, as well as tradition and the identity of architects. A strong commitment is found to studio pedagogy in both the profession and academia, but there is also debate regarding the content and proportion of the curriculum that should be associated with theoretical and practical dimensions (Cook & Hawley, 2004; Crosbie,
The studio concept and design teaching are considered together by the architecture academic community as evidenced in the following sections. It is also evident how variations occur in the studio concept and forms, as design and design teaching are not straightforward and highly specific to context and how a design problem is framed. To begin with, design can be understood by guiding principles, but ultimately design knowledge relies on experiential learning as a way to learn how to be an architect. This process is complicated to teach as architects draw from large bodies of knowledge that are combined with past designing experiences. As a result of this, a lot of these decisions and processes become tacit and, therefore, difficult to articulate (Aken, 2005; Cross, 2011; Lawson, 1997; Schön, 1983).

Another factor that contributes to the challenge of teaching design is the role of serendipity and creativity in the design process (Amabile, 1996; Cropley, 2001; Lawson, 1997; Reid & Solomonides, 2007; Suwa, Gero, & Purcell, 2000; Swede, 1993; Williams, Ostwald, & Askland, 2011). Creativity is highly valued in architectural education and architecture itself, but it is also subjective to whoever is conducting the appraisal. That is why the assessment of design work in schools or through professional awards and competitions is based on a panel of experts and representatives. The panel assesses both the design’s uniqueness and its usefulness. Furthermore, it explains why the role of critical discussion, reflection and enculturation forms a large part of design learning: so that students can become familiar with and recognise what creative and “good” design is (Ostwald & Williams, 2008a, p. 155; see also Balchin, 2006). From this backdrop it is understandable that multiple interpretations of the studio concept and design teaching exist.

The following sections of this chapter investigate the extent of studio interpretations, according to the theme areas of the studio as a place, culture, teaching approach and curriculum.

### 2.1 The studio as a place

It is common for the studio to be described as a physical place due to its links to a physical place (see Chapter 1, 1.1.2 Origins of the studio in architectural education). This section documents the studio as a place and indicates the challenges being faced in Australasia to maintain studio facilities due to reduced resources, increased student
enrolments and poor engagement by students. It also raises the concern that the loss of recognised studio facilities may adversely affect the development of a studio culture. The loss of studio facilities may also contribute to the increased use of the term studio in curricula titles, as many schools no longer have studio facilities.

The studio place is commonly understood to be an active and central site where most design work is carried out through “drawing, model making, debate, [and] discussion” in a large room (Dutton, 1991, p. 165; see also Anthony, 1991; Green & Bonollo, 2003; Moore, 1981). Ideally, students are provided with individual workspaces and lockable storage that is accessible 24 hours. This has led some to comment that the studio place becomes the “second or first home for students” (Beinart, 1981b, p. 214). This is reinforced by Boyer and Mitgang (1996) who describe these places as being easily identifiable on campus at night because of their light and activity.

Analogies are also used to describe the studio place as a laboratory in a university learning context or the architect’s office in the field of architectural practice. The potential to make other comparisons is possible, for example the association between the studio and the science laboratory learning space is where the emphasis is on students’ sharing and working on experiments/projects in dedicated and well-equipped spaces (Schön, 1983 in Anthony, 1991, p. 11; Webster, 2004, p. 105). The connection made between the studio and the architect’s office occurs because there is often the suggestion that the studio place simulates the architect’s office. However, Schön (1987) positioned the studio between the practice world and the academy, indicating that the context was not a true representation of either. This distinction is reinforced by others who argue that the studio is a “quasi-real world situation” (Beinart, 1981b, p. 228) as it borrows more from the designing process and practices than from the actual world of work in an architect’s office (Ashton, 1997; Salama, 2015). Another, less familiar analogy of the studio, has been made with a primary school classroom. The links made here are the immediacy between peers and the teacher, the significant amount of time spent learning and working in the same place, and the power relationship set-up between the teacher and the students in the classroom (Anthony, 1991, p. 11).

According to McClean, the higher education climate has magnified the “awkward fit of architecture into the ‘university system’” (McClean, 2008, p. 99). As a consequence, many strategies have developed to maintain studio facilities, including hot-desking, timetabling, privileging year groups and incorporating advanced technology (Duggan,
2004; Leon, 2004; McClean, 2008; Vowles et al., 2012). However, in many instances the availability and quality of places are too small to accommodate the expanded class sizes and some schools have relinquished the studio facilities, returning these to classroom spaces. The schools, in this situation, now operate with spaces not dissimilar to a generic tutorial or seminar room (Duggan, 2004; Leon, 2004; McClean, 2008; Ostwald & Williams, 2008a; Vowles et al., 2012; Zehner, 2008; Zehner et al., 2009). This could explain why references to studio as a place in Australasian schools are often left open and broad in description so as to accommodate the diversity of studio room types (see Chapter 1, 1.1.1 Studio definitions in architectural education). These challenges to the studio place have allegedly not been as evident or as apparent in the USA context (Koch et al., 2002; NAAB, 2004; Ochsner, 2000).

Another challenge for architectural schools in their efforts to maintain studio facilities is the transitory use of the facilities by students. As Henderson argues, the studio place has become less attractive to students as they frequently manage part-time jobs. In addition, accessibility to staff is an issue without dedicated places for students.

Everyone assumes that the studio culture is a good thing. But it is difficult to sustain when so many students have jobs, staff are under time pressure, there is a lack of funding and a lack of 24-hour access. Students need to see that studios are useful (George Henderson quoted in Leon, 2004).

Duggan (2004) concurs with the use of the studio place having become more a venue to “drop-in” and “drop-out” of, rather than a space in which to work and where a creative community stimulates discussion of ideas and learning. An Australasian survey about the studio in art, architecture and design indicated that academics perceived students used the computer laboratories most frequently (Zehner, 2008, p. 6). The mobility and affordability offered by personal laptop devices might be affecting studio space usage. Despite the concerns raised, senior academics in a UK study have reported a revival of the studio by students and this has been attributed to the availability of spaces with equipment to fabricate/make and draw (Vowels et al., 2012). However, most of these responses belong to the proportion of schools that operate with studio facilities and perceive it to enrich learning.

The loss of studio facilities has given rise to academic concerns that the ability to develop studio culture has been affected. The concern about a diminished studio culture is linked to students’ sharing a shorter period of time together, reducing the opportunities for peer support and learning to develop, especially when the studio
place does not exist or there are insufficient appropriate spaces available (Ostwald & Williams, 2008a, p. 133). This concern is further fuelled by the increase in SSRs and diminished contact hours and/or weeks of study (Ostwald & Williams, 2008a, pp. 133, 135), which impacts on studio culture and teaching practices. However, the development of studio culture involves more than the quality of the space alone (Ashton, 1997). Ashton’s study demonstrated that the quality of the space did not guarantee student involvement or attendance, as the most cramped studio places were often best attended, whereas the traditional/well-resourced studio had an absence of students (1997). These observations have been supported by Boys (2011, p. 174) who argues:

*that space is not central to learning (or any other occupation) but is one of the means through which we attempt to articulate new social and spatial practices, or to make concrete and ‘obvious’ existing ones. And just as learning is always more than the space in which it occurs, space is always more than just the activities it contains; it is a scarce resource and negotiable asset in its own right.*

Boys contributes to a better understanding of the relationship between the design of spaces (architecture) and occupation, but this aspect still needs better definition and more research, as the space is only one part of larger set of conditions to understand in learning and teaching. The space, according to Boys, is an “integral” part of learning and teaching “but not central or singular” (2011, p. 175). Both Ostwald (2015) and Maitland (1998) concur that the studio place alone is not especially important, as it is the combination of appropriate learning and teaching and the curriculum design that is essential (Ostwald, 2015, pp. 164–165). Ostwald further contends that the traditional studio place is a “nicety” and design learning and teaching can happen elsewhere (2015, p. 165).

In summary, the studio place in Australasia has been challenged by the changing higher education landscape with the proportion of schools offering studio facilities diminishing. Concerns exist that the reduction or even removal of studio facilities may be detrimental to students’ learning and knowledge of architectural design, as students have only condensed time to develop studio culture and peer learning support (Duggan, 2004; Leon, 2004; Ostwald & Williams, 2008a; Vowles et al., 2012; Zehner, 2008). However, the quality of space does not always indicate the potential for studio culture and student engagement. Ashton’s (1997) study showed that student engagement was not linked to the quality of spaces. According to Boys, the ramifications of various types of space in learning and teaching remains unresolved.
There is some research (Vowles et al., 2012) that provides evidence that studio facilities are a necessity or more beneficial than other spaces such as design classrooms and tutorial rooms. There is still insufficient research to support the preference of studio spaces over other spaces held by many academics in teaching architectural design.

2.2 The studio as a culture

The studio concept can also be understood as supporting the development of a culture where students’ learning is shared and enriched by their interaction with peers, senior students and teachers, in a supportive environment (Anthony, 2002; Borden et al., 2010; Leon, 2004; Vowles et al., 2012). Studio culture is commonly associated with students’ working, socialising and almost living together in studio facilities (Schön, 1987). Studio culture is considered important for students to sense they belong in the school and architectural community (Koch et al., 2002). It is important as it creates a “community of practice” for the support and exchange of discipline group practices (Wenger, 1998). The studio culture is also understood to form a significant part of the “hidden curriculum” (Dutton, 1991) and, as such, it is a crucial influence on design learning and teaching in architectural education. Despite many references being made to studio culture, there are many questions about the formation of studio cultures and how they may foster both positive (peer and group learning) and negative (competitiveness, survivor approach, exhaustion) behaviours. This section explores the challenge of defining studio culture by considering the positive and negative behaviours attributed to it and the limited understanding of how to develop studio culture. In Australasia many schools no longer have access to studio facilities; what does this mean for the formation of studio culture?

This is an important question as culture is acknowledged as playing a crucial role in the learning and teaching of design (see Chapter 1, 1.1.2 Origins of the Studio in architectural education). Banham (1996, p. 299) has described architectural education as a “black box” due to its level of mystique. He speculates that if the profession dared to interrogate this “black box” they might find it contains nothing, because architectural education is an enculturation process involving engagement with traditions and rituals. However, the role of culture, with its traditions and rituals, is difficult to completely describe and evaluate (Jamieson, Fisher, Gilding, Taylor & Trevitt, 2000).
The result of positive behaviour from studio culture is associated with peer learning, and students supporting one another in learning and group work (Borden et al., 2010; Leon, 2004; Vowles et al, 2012). Senior academics and students (Vowles et al., 2012, p. 46) report the principal benefit is the support provided to undergraduates in their understanding of the design process and design thinking. There is also the perception that students who engage in studio facilities and the culture of design learning are more likely to perform better than those who do not partake (Vowles et al., 2012).

Another source describes the benefit of studio culture as being where students feed positively off each other in a far more authentic way than when undertaking contrived group work (Roberts & Henderson cited in Leon, 2004).


Concerns raised include that the studio environment fosters behaviours such as competitiveness, the forming of cliques and a "survivor" mentality, all of which affect students' learning approaches negatively. Other behaviours that are also considered negative are the isolation from other social groups outside the discipline, the development of poor health habits (diet and sleep), and the perception that there are 24 hours in the day to work on designs, which leads to the existence of the "all-nighter". Some students even believe that engaging in the "all-nighter" is related to obtaining excellent design results (Anthony, 1991; Koch et al., 2002).

Concerns relating to negative behaviours that can arise from studio culture were acknowledged in the USA through the accreditation process in 2004 (NAAB, 2009). Architecture programs are required to develop and maintain a studio culture policy with their student cohort (NAAB, 2009). The intent of schools forming a studio culture policy was to make explicit and articulate the purpose and processes, not only within the studio facilities, but also in design learning and teaching. In reading the report on the success of the studio culture policy the descriptions were broad and open, making it difficult, even as an experienced reader, to elicit the meaning of studio culture outside of the USA (AIAS, 2008).

There is a lack of research addressing the development of studio culture when studio spaces do not exist in a school. The absence of the studio place does not preclude the formation of a culture, but little is known or documented about this, suggesting it is not
yet fully understood. This represents a gap in the understanding of the impact that culture plays on student learning and engagement. The studio definitions in Australasia acknowledge the role of culture but provide little additional information about it (Ostwald & Williams, 2008a; Zehner et al., 2009). Ostwald and Williams (2008a, p. 177) state that one part of the studio is “a space or place for enculturation in a design profession and its practices”. The reference to space or place appears to be negligible as long as it accommodates/ provides a venue to create a culture wherein to practice. Zehner et al. (2009, p. 94) consider “a culture – people – students and teachers – who build a creative community” to be one of the four essential elements of a studio in art, architecture and design. They provide no further expansion on how a creative community is built but state that the desired outcome is creative action, explaining that studio teaching involves learning through action and they list the types of activities and skill outcomes (Zehner et al., 2009, p. 94).

This section has explored the role of culture in the concept of the studio. Through enculturation students are assisted in their transition from outsider to a member of the traditions, rituals, values and practices espoused by architects and designers (Banham, 1996). Culture is part of the learning and teaching process for design, which requires and relies upon experience, discussion and reflection over multiple years (Aken, 2005; Cross, 2011; Lawson, 1997; Salama, 2015; Schön, 1983). It is evident that the development of studio culture may foster positive and negative behaviours, and as a consequence the accreditation process in the USA requires each architecture school to construct a studio culture policy in collaboration with the student body. Such policies make explicit and articulate the purpose and processes, not only within studio facilities, but also in the learning and teaching. However, it is not clear whether these policies contribute to the process of fostering a positive studio culture.

Even though links are made between the losses of studio facilities with the losses of studio culture, in Australasia there is little evidence to support this. Overall little research exists about the factors that contribute to the positive development of studio culture.

2.3 The studio as a teaching approach

The studio as a teaching approach is well documented, and is often referred to as the design studio or design studio teaching. What does the studio as a teaching approach denote and how does this influence diversity in the studio model? The studio teaching
approach may refer to: design instruction in studio facilities; the employment of small-group teaching methods in a more generic tutorial space; or the employment of project- or problem-based learning using lectures and other large-scale teaching methods. Each of these scenarios (Bates et al., 2015; Salama, 2015; Spiller & Clear, 2014) may be in response to the context and climate in which the schools of architecture reside.

The following themes are examined in order to contribute to better understanding the different models or presentations of the studio. The discussion begins with the fundamental role that project- or problem-based learning (section 2.3.1) plays and its implications for learning and teaching. The next theme compares the effectiveness of one-on-one studio instruction and small-group instruction to support student learning (section 2.3.2). Another theme explores the influence of resourcing (section 2.3.3) on the studio teaching approach. The discussion concludes with the theme of assessment (section 2.3.4).

### 2.3.1 Project- or problem-based learning

The studio as a teaching approach is commonly associated with or understood through the premise of project-based learning or problem-based learning, where students learn from the act and experience of resolving a project/problem (Ostwald & Williams, 2008a; UNESCO/UIA 2002; Salama, 2015; Webster, 2004; Zehner et al., 2009). For the purposes of this dissertation, references to project and project-based learning will also encompass the problem and problem-based learning. There is much debate regarding the differences between project- or problem-based learning but also their similarities (Adderley et al., 1975; Blumenfeld et al., 1991; Boud & Feletti, 1991; Chambers, 2007; de Graaf & Kolomos, 2007; Helle et al. 2006, p. 295; Lee, 2009; Savin-Baden, 2007).

According to one perspective, the key difference is that project-based learning is more a teaching method while problem-based learning includes approaches to the curriculum and course design (Savin-Baden, 2007, p. 19). In another example, the distinction is described to be the outcome. It is argued that problem-based learning does not always require an outcome as the focus is on the “studying” or learning, whereas with project-based learning it is more the product (Helle et al. 2006, p. 295).

The key similarity between project- and problem-based learning is their reliance on an experiential learning approach, which is also resource intensive and potentially in conflict with the current higher education landscape. It is for these reasons that project- and problem-based learning are combined and the following discussion focuses on the experiential learning approach.
An experiential learning approach is often employed in a profession-orientated program such as medicine, law, science, engineering and architecture (Fry, Ketteridge, & Marshall, 2009; see also Andresen, Boud, & Cohen, 2000; Biggs & Moore, 1993). The use of an experiential learning approach is particularly appropriate when materials are ill-structured or challenging, such as those in the context of design which ultimately has more than one correct response and when the goal is meaningful and authentic, and representations or evidence of learning is required (Moon, 2004). These learning approaches are known to be labour intensive and require greater resources to support the crucial role of reflection (Boud, 1995; Moon, 2004; Race, 2005). Knowledge is created from experiencing the process (Kolb, 1984), which occurs within a context, and is formed by the individual’s process of reflection to validate and transform their experience (McGill & Warner Weil, 1989; see also Boud, Cohen, & Walker, 1993).

The crucial role of reflection process was elevated by Schön’s works (1981, 1983, 1985, 1987 & 1988) and originated from a study on architectural education (Porter & Kilbridge, 1981a). Schön (1983) argues in The Reflective Practitioner that this approach benefits profession-based disciplines other than architecture by supporting the student to “reflect-on-action” and “reflect-in-action” to develop professional knowledge. In architectural education this approach is still considered crucial for project-based learning and the development of design knowledge as it involves students’ assimilating values and attitudes held by practitioners and academics. It is here where the debate and challenge exists, since it is contended that the success of this instructional approach lies in how reflection is supported and motivated by critique and the enculturation process.

### 2.3.2 Instruction to support student learning

The traditional approach to instructing and supporting student learning of design involves critique and the enculturation process. The critique may take the form of a one-on-one desk crit between student and teacher or collective learning through critique and discussion within a small group of students and a teacher (Beinart, 1981b; Schön, 1983). The very nature of project-based learning and design means that a student will become challenged, confused, frustrated and potentially demotivated, so the role of the teacher (tutor/“coach”) is important (Savin-Baden, 2007). In addition the changing higher education landscape has also propelled schools to reconsider the effectiveness of this instruction with many schools responding to the pressures of fewer contact hours, increased class sizes and no studio facilities (Cowdroy et al., 2007;
McClean, 2009; Webster, 2004, 2008; Wood, 2009). As a consequence, a new impetus exists in architectural education to explore alternative or modified design instruction methods that benefit student learning and resource effectiveness (Anthony, 1991; Beinart, 1981b; Dutton, 1991; Cowdroy, et al, 2007; McClean, 2009; Ostwald & Williams, 2008a, Swales, et al., 2001; Webster, 2004, 2008; Wood, 2009; Zehner et al., 2009). Three central themes emerge from the analysis of these studies and are summarised below:

1. preparedness of the teacher to support students in design learning as it is often misunderstood or misinterpreted;
2. effectiveness of one-on-one instruction;
3. effectiveness of instruction from the student perspective and how this differs from teacher perceptions.

The first theme, namely “preparedness of the teacher to support students in design learning as it is often misunderstood or misinterpreted”, is explored below. There are many instances where the teacher is unaware that their instruction provides the solution, and that students are likely to simply apply their advice without questioning its context and/or understanding the approach (Cowdroy et al., 2007, Wood, 2009). This problem is found with experienced academics and practitioners, graduate architects and senior students (Beinart, 1981b; Cowdroy, et al. 2007; Webster, 2004; Wood, 2009). Cowdroy et al. (2007) believe that those teaching are not the problem but direct their criticism towards the minimal teaching support and structure (i.e. assessment criteria) given to casual/sessional teachers to engage students in their learning. However, this does not account for full-time academics. They explain that misinterpretation or misconceptions regarding student learning is a legacy of the behaviour apprenticeship model used in the Beaux Arts and Bauhaus models and including Schön's work (1981, 1983, 1985 & 1987) where the "master" teaches or tells the student. Instead, the “expert” assists the student to recognise the gap between their intentions and what is enacted (Ramsden, 2003). In Webster’s (2004, 2008) opinion, architectural education would benefit by accessing more recent and up-to-date sources on professional education and reflective learning, such as the work of Moon (2004) and Boud (1995), rather than following Schön. McClean’s work (2009) recommends that the role of the tutor needs reconstructing to overcome the influence of tradition and culture of design instruction. However, trouble such as teachers telling the students the answer is experienced in many other disciplines than architecture where project- and
student-centred instruction is employed (Savin-Baden & Major, 2004, p. 51; see also Biggs & Moore, 1993; McWilliam, 2009).

The second theme, namely “effectiveness of one-on-one instruction”, is explored below. The one-on-one approach amplifies the problem of teacher preparedness to support student learning (Beinart, 1981b; Webster, 2004, 2008; Wood, 2009). Instead, these authors recommend the expansion of one-on-one to two to five students with a teacher as this mediates problems that may be experienced with different students in terms of personality, abilities and approaches to learning. It also challenges the approach where the teacher provides specific solutions to the problem and makes greater use of the small student group to discuss opportunities and potentials. The basis for small-group teaching is in response to findings that only able and high-level students benefit from one-on-one tutoring process (Webster, 2004; see also Beinart, 1981b). In order to pass, less able students are more likely to cover “their lack of understanding by following the tutor’s instructions” to alleviate concerns of being “bullied or humiliated” (Webster, 2004, p. 108; see also Anthony, 1991; Wood, 2009). These students are more likely to take a “passive compliance” stance, than challenge their own thinking (Webster, 2008; see also Beinart, 1981b). They observe that students learn more about their teachers’ preferences instead of understanding how they learn and how they employ new knowledge in unfamiliar situations (Anthony, 1991; Argyris 1981; Beinart 1981b; Dinham, 1987; Dutton, 1991; Webster, 2004). Students are more likely to become dependent on their one-on-one instruction and less likely to challenge their thinking/knowledge (Anthony, 1991, p. 14; Green & Bonollo, 2003; Wood, 2009). The inclusion of a few additional students reduces the focus or engagement between one student and teacher and allows for multiple voices and interpretations. It is likely that another student group to be disadvantaged by the one-on-one approach is students who have English as a second language (Swales et al., 2001). Thus, questions have been raised as to whether or not the status afforded to one-on-one tutorials (20–30 minutes) should remain, particularly in the climate when there is increased student numbers and diminished resources (Webster, 2004, p. 106; see also Beinart, 1981b). This indicates both the challenge to teach design thinking and skills, as well as its longstanding cultural attachment to academics and practitioners.

The third theme, namely “effectiveness of instruction from the student perspective and how this differs from teacher perceptions”, is explored below (Ashton, 1997; Bender & Vredevoogd, 2006; Webster, 2004). In Webster’s (2004) study, students reported that instruction by their teachers was typically demonstrated by their drawing over
students’ work, thereby compelling students to adopt the tutor’s design stance and suggested solutions, and restricting the opportunity for the student to construct their own meaning (Webster, 2004, p. 108–109). In contrast to the students’ perceptions of limited opportunities to construct meaning, teachers thought that their approaches did assist students in constructing their own knowledge (Webster, 2004, p. 109). The one-on-one teaching approach has been reported to lead, to the potential of other students in the tutorial group waiting up to three hours for a few minutes of individual feedback (Bender & Vredevoogd, 2006), treating the tutorial session as a personal consultation. A similar observation was made by Ashton (1997) who studied academics’ perceptions of most of their time being spent on one-on-one instruction. However, students’ perceptions were that more time was spent in group formats through lectures, workshops and design critiques than spent on an individual crit. The majority of the student experience was through the group, not individually, yet the design instruction approach used by the teacher (both academic and practitioner) was nearly identical. For example, the type of instruction provided to a student in a one-on-one tutorial would often be the same as in a group tutorial except that there were other students watching and listening. There was little motivation for students, other than the student presenting their work, to engage in the discussion with the tutor unless others were invited and the environment was safe and beneficial to express an opinion. This led Ashton (1997) to recommend that the student experience be taken into account to a greater extent with more techniques for group tutorials used in studio. Ashton notes that to develop the group tutorial, it needs to incorporate the advantages of the one-on-one but without reducing it to a lecture format. In addition the use of small groups needs to develop and foster peer learning according to McClean (2009). Peer learning should be the central focus for how students learn.

To conclude, typically instruction in studio to support student learning is mainly drawn from the tradition of one-on-one tutoring and the use of critique. Many design teachers are unaware that their approach of providing advice, and sometimes the solution, limits student learning and encourages greater tutor dependency and understanding of their tutors’ design preferences. It is suggested that (Ashton, 1997; Beinart, 1981b; McClean, 2009; Webster, 2004) small-group instruction (2–5 students) is more effective in the current higher education context, than the tradition of the one-on-one approach (McClean, 2009; Webster, 2004). The reason for this is the one-on-one approach may go awry due to personalities and abilities of the student, and the interpersonal communication skills of the teacher. The importance of peer learning has also been
highlighted as the future direction for instruction that supports student learning in studio.

2.3.3 Influence of resourcing

The analysis of the studio as a teaching approach highlighted the impact of reduced resources on studio models. Studies from Australasia (Cowdroy et al., 2007; Ostwald & Williams, 2008a; STP, 2010; Wood, 2009) indicate that the combination of contact time and size of the group influences the instruction approach taken. The preferred model in Australia, since the 1990s, is to supplement small-group tutoring with large-scale teaching methods, in response to reduced resources in the higher education context (Ostwald & Williams, 2008a, p. 25). In contrast, three New Zealand schools appeared to afford and maintain the tradition of one-on-one tutorials (Wood, 2009). These findings align with the difference between Australasian countries as described in Chapter 1 where New Zealand schools were better resourced than in Australia. The following section explores the influence that resourcing has on the size of tutorial groups and also the influence that contact time has on the instructional approach adopted in studio. It also explores strategies employed to maintain the effectiveness of small-group teaching by blending studio with other delivery methods.

In Australasia, according to Ostwald and Williams (2008a), small-group teaching of up to 15 students is the best approach for design instruction when supplemented by lectures. This is so that students can be engaged and learn from each other, since benefits are gained from students discussing and debating multiple perspectives and approaches within a group of peers (Kolb, 1984). However, if the group size goes beyond 15 students it is more likely that individual appointments are made with students during studio time, making it less effective as the students have reduced contact time and opportunities for peer learning and the teacher tends to repeat advice (Ostwald & Williams 2008a; Wood, 2009). It is suggested that the group size and contact time needs to be related to the facilitation skills of the teacher or the “system to maintain the interest of all students for the entire time” (Ostwald & Williams, 2008a, p. 149). To maintain student engagement teachers require training in design instruction, including guidance to scaffold learning and develop greater interpersonal skills (Helle et al., 2006; see also Adderley et al., 1975; Ashton, 1997; Beinart, 1981b; Webster, 2004). In addition small-group teaching to support student learning involves the willingness and maturity of the students (Askland & Ostwald, 2012, p. 51; Webster, 2004).
Another strategy documented to maintain the viability of small-group teaching in Australasian design units is having fewer instances of small-group teaching, but for longer periods (Cowdroy et al., 2007). The rationale for this aims to alleviate the overall diminishing time afforded for tutorials, to allow students to identify challenges and opportunities from facilitated discussion. The overall reduction in weekly tutorial time would provide the teacher with time efficiency, but would not necessarily support student learning. The provision of more time for project discussion enables students to develop higher-order thinking, in preference to focusing on the “answer” from the tutor. Students determine their personal position and path from the presentation, and defend and debate a number of students’ work. It is important that the role of the tutor is less to intervene and more to act as a sounding board, encouraging students to reflect and self-assess. Prioritising small-group teaching to focus on higher-order thinking allows the acquisition of skills, knowledge and less critical thinking to be facilitated by large-group teaching and self-directed research (Cowdroy et al., 2007, p. 52). Small-group teaching is also thought to support students who progress at different rates and do not always align conveniently with an organised program (Cowdroy et al., 2007, p. 58). The rationale draws from Bigg’s (1999) work that shows that the development of skills and knowledge requires the constructive alignment of learning outcome, student learning activities, and assessment methods to support student learning (Fry et al., 2009; Norton, 2009).

Further strategies emerging in response to fewer resources and increased student enrolments are found in The Studio Teaching Project case studies (STP, 2011). A proportion of the case studies focus on large-class teaching and feedback techniques (Dickson, 2011; Fell, 2011; Taylor & McCormack, 2011) such as an effective and concise presentation method for large-class design crits, using Pecha Kucha (Shannon, 2011). The use of digital platforms is also described by Longbottom (2011) which fits into the use of blended learning where not only small-group instruction occurs in teaching design but also lectures and other large-scale teaching practices. It can include tutorials via the computer and weekly digital reviews and portfolios (Bender & Vredevoogd, 2006). The increasing use of a blended approach to teaching has emerged in response to the massification of higher education and increased personal access to digital devices and computers. These conditions have promoted a greater focus on the effectiveness of instruction and the development of digital modes and repositories. A blended approach has emerged to enhance levels of student engagement.
This section demonstrated that a variety of instructional approaches are being developed in response to reduced resourcing for studio teaching. Debates remain about the effectiveness of group size and contact time. Ostwald and Williams (2008a) indicate that effectiveness is highly dependent on teacher skills to engage students meaningfully for the entirety of the class otherwise the economies gained by larger groups or longer hours are often reduced as studio teaching often reverts to individual consultations. Another strategy offered involves prioritising small-group discussion for higher-order thinking and using lectures or online delivery for lower-order thinking. The use of digital platforms for instruction is beginning to be experimented with and used. So, in summary, the structure of one-on-one tutorials and small-group critiques have changed in response to reduced resources and increased student numbers. Instruction in studio still largely draws from the past atelier/Beaux arts methods.

2.3.4 Assessment

Assessment is the final theme in this review of the studio as a teaching approach. The rationale for including assessment is because of the influence it has on promoting student learning as well as measuring the learning and teaching (M Ostwald & Askland, 2012a). The different roles of assessment are based on the commonly accepted practice of constructive alignment (Biggs, 2003) whereby the student constructs their learning through the guidance of the learning outcome, learning activities and assessment. Boud et al. (2010, p. 3) contend that assessment is not viewed as an "add-on" and needs to be "embedded strategically" to enhance learning. As stated above, the success of student learning more likely occurs when learning outcomes, learning activities and assessment are constructively aligned (Biggs, 2003).

It is obvious then that architectural education also considers assessment “the most significant influence on learning and on the development of professional abilities in schools of architecture” (Nicol & Piling, 2000, p. 20). In particular, assessment practices can be used to promote discovery and reflective learning and to ensure future learning and the ability to design in novel circumstances (Ostwald & Askland, 2012a). However, a number of studies refute the current practices in learning and assessment, claiming that they are failing to support lifelong learning skills, due to the way in which feedback on learning is provided (McCarthy, 2011; McClean, 2009; Ostwald & Askland, 2012b; Webster, 2008). These criticisms relate to assessing the product rather than the learning process of the person (de la Harpe et al., 2009; M Ostwald & Askland, 2012b). The person refers to the development of lifelong learning skills that is enabled through
self and peer reflection and assessment practices. Academics are reported in the Australasian context to believe that the level of resourcing to architectural education is below what is required to maintain minimum standards (Ostwald & Williams, 2008a, p. 157), including resourcing of the assessment process.

There are many key issues that inform assessment of design that are inescapably connected to the teaching of design. These include the role and value assigned to creativity and how this is assessed through a consensual assessment process, more commonly known as the crit. While the purpose of the crit is to measure, it is also employed as a teaching method to discuss, reflect and learn from the opportunities presented in the design and through the design(ing) process. The crit is enduring despite a number of criticisms leveled at it. These are examined below. The section concludes by reviewing the debate about the product-versus-process outcome as a true measure of student learning (Askland & Ostwald, 2012; de la Harpe et al., 2009; Ochsner, 2000; Oxman, 2008; Salama, 2015; Wood, 2009; Zehner et al., 2009). It also draws attention to models of assessment in Australasia and their implications for student learning.

The process employed to assess creativity in the design solution is fundamental to learning in architecture. Creativity is the highest accolade that can be given to a designer’s work (McLaughlin, 1993, p. 43). Creativity is often employed to discriminate grades even though it may not be formally described in assessment criteria (Cowdroy & de Graaff, 2005; Reid & Solomonides, 2007, p. 27; Zehner et al., 2009). For creativity to be recognised requires that the design solution is considered unique and useful in its context by the discipline and, more broadly, by society (Amabile, 1996; A. Cropley, 2001; Csikszentmihalyi, 1999; Swede, 1993). The creative-based disciplines argue that creativity is subjective and needs to be assessed through the collaboration of teachers (academic, practitioner, client group) and students (Christiaans, 2002; D. Cropley & Cropley, 2010; Hennessey & Amabile, 2010; Jackson, 2005; Moore, 1982; M Ostwald & Williams, 2008a). It is depicted as a “consensual assessment process” (Hennessy & Amabile, 2010, p. 573), which explains the use of review panels in design assessment and the important role of debate and discourse to form judgment on the success of the proposition. This is counter to the aspirations of quality assurance in higher education where the aim is to remove and reduce subjectivity (Rust, 2000) and, thus, places the assessment process in conflict with centralised systems within universities. The reduction in resources and the expansion of student numbers are challenging schools of architecture to maintain and afford the crit and review panel process and is,
therefore, leading to the development of various alternatives to the crit and review panel methods (Ostwald & Askland, 2012b; Salama, 2015; Shannon, 2011; Zehner et al., 2009).

As stated, the principal assessment method used in the studio or design context is the crit, when students present their design solutions to a panel of critics (Anthony, 1991; Dutton, 1991; Nicol & Pilling, 2000; Ostwald & Askland, 2012a; Salama, 2015; Webster, 2007). Although commonly known as the crit, it is sometimes referred to as the design jury. However, the nomenclature is changing in some schools and terms such as review or forum are being introduced to reflect changes being made to the feedback processes and the role of discourse in the process (Seligmann, 2015). The term “crit” is a remnant of the Beaux-Arts model (Porter & Kilbridge, 1981a, p. x) where exhibited student work was judged behind closed doors. Later, students became part of the process and were required to present and defend their work in front of the design critics and their peers (Anthony, 1991). Critics for a panel may have included practitioners and academics external to the studio, as well as studio teachers and tutors. The crit can fulfil both the role of feedback or formative assessment, or the grade, or summative assessment. It is also a site of enculturation as evidenced by the student’s presentation and defence (Ostwald & Askland, 2012a, p. 70). This is explained below.

Criticisms levelled at the crit are presented in Anthony’s Design Juries on Trial (1991) where she explains the role of the crit in architectural education and how the hierarchy set up between the critics (assessors) and the learner can be seen to be counter to student learning (Anthony, 1991; Dannels & Martin, 2008; Dutton, 1991; Till, 2005; Webster, 2008). This includes the physical set-up of the crit, where the critics attack and students defend (Boyer & Mitgang, 1996; Doidge, Sara, & Parnell, 2000). It includes poor communication amongst critics that can derail the process (Doidge, Sara, & Parnell, 2000). It has been found that students in the crit environment are more likely to adopt a compliant or strategic approach (Beinart, 1981b; Dutton, 1991; Webster, 2004) to their learning, as they may be motivated by a fear of failure (Bachman & Bachman, 2006; Till, 2005) or gaining a qualification (Williams, Ostwald, & Wallis, 2009). This is why many academics have argued that there is an overreliance on and use of the traditional crit form despite its flaws and there is need for change to occur (Anthony, 1991; Doidge, Sara, & Parnell, 2000; Dutton, 1991; McCarthy, 2011; McClean, 2009; Ostwald & Askland, 2012a; Webster, 2008).
Similar criticisms are levelled at the internal crit process (Beinart, 1981b; McClean, 2009; Webster 2004; Wood, 2009). The internal crit process is like the crit but employed formatively to provide feedback to students and promote group discussion. There are no grades awarded for the internal crit as they are not summative and do not contribute towards the overall grade. The internal crit commonly involves the tutor and a small group of students in the activity. The internal crit can be understood to be the discussion of a small group of 15 students and tutor (as described in this chapter, section 2.3.3 Influence of resourcing).

Many strategies are being utilised to improve both the crit and the internal crit, which indicates the level of variation occurring to the curriculum design and assessment processes. One strategy (already discussed in this chapter, section 2.3.2 Instruction to support student learning) involves the better preparation of teachers to understand the learning process and develop their interpersonal communication skills. Students also need to understand the rationale behind the process to enhance their learning. Part of this requires the accessibility to assessment rubrics with marking criteria and performance descriptors (Askland & Ostwald, 2012). Other strategies being used to vary the central role of the crit in summative assessment include the use of an exhibition, portfolio, online peer evaluation, reflective journal review, self-assessment and peer assessment amongst others (Anthony, 1991; Askland & Ostwald, 2012; Doidge et al., 2000; Salama, 2015; Shannon, 2011; STP, 2011). Alternatively, the crit is being redeveloped so it can be led by students and include emphasis on different components, thereby expanding students’ exposure to new experiences that are less intimidating and which have been shown to develop skills for the final traditional crit (McCarthy, 2011; White, 2000). McCarthy (2011), working with five different crit types, is testing them with second- and third-year students. Types include “(i) the Performance Review Crit (ii) the Judging Panel Crit (iii) the Open Marking Session (iv) the Blogging Crit and (v) the Speed Crit” (McCarthy, 2011, p. 9). The crit types vary in time, interaction (one-on-one, pair share, small group) and the role of teacher and students is to constructively critique, interpret, observe and re-present work. Students have reported favourably on the inclusion of different crit types at the interim stage of the semester, most notably the open marking session and the speed crit which involves peer assessment.

Another aspect being considered is the role and weighting allocated to the product and process outcomes, an issue that many have debated (Askland & Ostwald, 2012; Ochsner, 2000; Oxman, 2008; Salama, 2015; Wood, 2009; Zehner et al., 2009). Studies
(de la Harpe et al., 2009; Zehner et al., 2009) in Australasia found that the majority of summative assessments rely on the measurement of the final product outcome. Academics hold concerns that the over-reliance on the product outcome may influence a "true" assessment of students' thinking and understanding (Ochsner, 2000; Ostwald & Askland, 2012b; Wood, 2009). For instance, the level and type of tutelage has a bearing on the final outcome and only later will it become evident how well that decision process and knowledge can be applied to another scenario with a different teacher. This highlights the need for process and personal learning skills to form part of the assessment system (de la Harpe et al., 2009; Zehner et al., 2009). To assess the process relies on dialogical means as well as through weekly journals, concept diary, and/or portfolio (Askland & Ostwald, 2012; see also Crowther, 2012). The emphasis on the product outcome in architecture is no different to the general trend in higher education (Rust, 2000).

Ostwald & Askland (2012b, pp. 90–99) have developed four models that respond to the different assessment regimes being used in Australasia. The models are named to reflect their context and qualities: Model A: "Beaux-Arts", Model B: "Conventional", Model C: "Institutional" and Model D: "Student Centred". The differences between models can be understood by the number of summative assessments relative to formative assessments, the level of explicitness in the task description and the reliance on rubrics, the assessment outcome/format and the strategies to enhance reflection (Table 2.1) (Ostwald & Askland, 2012b). The "Student Centred" model was considered the best for constructing and sustaining learning beyond the design studio unit. However, it was less likely to be used due to additional time required to personalise students' learning/assessment and its difficulty in aligning with university and professional standards.

As discussed above, there are many issues that concern assessment in the design studio. Concerns remain in relation to the role of assessment in architectural education, including how teachers conceptualise assessment and their students' views of learning. In addition the implications from the massification of education and quality assurance demands require more explicit framing and rubrics in a context characterised by fewer staff and more students. The implications of this situation are reduced time for dialogue and reflection amongst peers, teachers and guests. There are also questions about how best to ensure the inclusion of process outcomes in the assessment since it most likely involves self- or peer-assessment strategies. Australasian academics have expressed that there are insufficient resources for studio in order to sustainably teach
and assess, and that the minimum standards are not always being met (Ostwald & Williams, 2008a). Assessment is where the intersection of fewer resources, the culture of design teaching and the quality assurance demands are most evident. The implications of this are that diversity is occurring in the types of assessment being used in studio models due to this reduction in resources, as seen in the four assessment models (Ostwald & Askland, 2012b). If academics are concerned that minimum standards are not being met, what does this mean in relation to quality assurance and accreditation processes? All accredited university programs in architecture have maintained their accreditation since this study was conducted (AACA, 2015).

Table 2.1  Key interpreted differences between assessment models in Australasia

<table>
<thead>
<tr>
<th>Model</th>
<th>No. of summative assessments</th>
<th>Framing of task</th>
<th>Rubrics</th>
<th>Assessment outcome/format</th>
<th>Strategies to enhance reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model A: &quot;Beaux-Arts&quot;</td>
<td>Single</td>
<td>Implicit</td>
<td>No</td>
<td>Portfolio</td>
<td>No</td>
</tr>
<tr>
<td>Model B: &quot;Conventional&quot;</td>
<td>Plural</td>
<td>Between</td>
<td>No</td>
<td>Pin-ups/crits</td>
<td>No</td>
</tr>
<tr>
<td>Model C: &quot;Institutional&quot;</td>
<td>Plural</td>
<td>Explicit</td>
<td>Yes</td>
<td>Pin-ups/crits/Exercises</td>
<td>No</td>
</tr>
<tr>
<td>Model D: &quot;Student Centred&quot;</td>
<td>Plural</td>
<td>Between</td>
<td>Yes</td>
<td>Crit/portfolio/reflective Journal</td>
<td>Self &amp; peer assessment</td>
</tr>
</tbody>
</table>

2.4 The studio as curriculum

The studio as curriculum refers to how the studio is represented in the curriculum by investigating its nomenclature, time allocated in the curriculum and the intent of the design units and the implications for these issues when resources are reduced. The purpose of this section is to identify other possible factors influencing the diversification of studio models. References to the learning and teaching process, and their implementation and evaluation, are excluded from the studio as curriculum section, as these were addressed previously (see this chapter, section 2.3 The studio as a teaching approach).

In terms of nomenclature, the design unit title is commonly formed in Australasian programs by the use of the terms “studio”, “design” and/or “architectural” (AIA, 2008b). The variation in nomenclature according to Ostwald and Williams (2008a) is indicative of the lack of consensus on the studio concept but overall its importance to
architecture schools. The inclusion of studio in the unit title may refer to the project-based approach to teaching, which could occur within studio facilities or in a generic tutorial room. In a number of schools where studio spaces were no longer available, Ostwald and Williams (2008a) observed that studio was however included in the design unit title. The question as to whether a trend exists remains unanswered.

In terms of time allocation, studio as curriculum can be understood as the dominant design area and proportion of the curriculum timetable. In Australasia in 2006, the design area represented on average 38% of the total five-year curriculum (Ostwald & Williams, 2008a, p. 121), making it the largest curriculum component when compared to other curriculum components, including technology, history/theory, communication, practice/research, environmental studies and electives. However, overall the design area varied from 25% to 54% of the five-year curriculum across the 19 schools of architecture (Ostwald & Williams, 2008a, p. 131). This indicates a significant variation influencing the diversity in studio models as the proportion of time spent in design studio differs between schools. However, it is more likely that some of these percentages may be conservative as design instruction may also occur in the curriculum areas including in electives, research and others, making it difficult to identify design areas with total confidence from the desktop audit conducted by Ostwald and Williams (2008a, p. 131).

By comparison, the design area constitutes 60–80% of students’ time in the UK (Crinson & Lubbock, 1994, p. 163), leading to Crinson’s and Lubbock’s belief that the commitment displayed in design matches that of the Beaux-Arts tradition. In the USA, estimates from the 1970s suggest that students spent 50% or more of their time in the studio and that design was taught as a discrete unit (Porter & Kilbridge, 1981a, p. x).

In terms of the intent of design units there is a general reluctance in the literature to define the overall intent, approach or style of the design curriculum. According to Crinson and Lubbock (1994) this originates from the modernist paradigm, where design should remain in a state of constant flux and respond to changes in society (p. 162). Differences are reported as existing between the curriculum intent in unit outlines and the enacted curriculum from classroom observations (Dutton, 1991; Beinart, 1981a). This led Beinart (1981a, p. 12) to the finding that design curricula are understood by the selection of a problem to facilitate learning and skills.

A useful summary of the “design studio” curricula that extends the principal selection of a design problem to include three key aspects, namely student’s ability to:
• **visualize and represent**;

• **adopt a new discipline language that is co-dependent in the use of graphic and verbal media to describe and explain concepts**; and

• **think architecturally** (Ledewitz, 1985, p. 2).

Ledewitz deliberately made reference to these three aspects instead of objectives or learning outcomes, as they were not accurately aligned or assessed against the stated assessment criteria. To “think architecturally” is a difficult concept to define or explain as it requires experience to develop an understanding and, hence, the associated problems in assessing and determining appropriate levels of thinking architecturally (Ledewitz, 1985). The importance of thinking and learning in an architectural manner refers to:

> [The studio] is less about training students to design various building types in certain styles than about teaching students how to learn, and how to learn broadly about the circumstances and possibilities of building before and during the process of designing it (Bloomer, 1998, p. b9).

Ledewitz (1985) also highlights the need for students to adopt a new discipline language, both graphically and verbally. This has gained more recent attention, for example, Swales et al. (2001) are critical of the “design studio” and architectural education, as they believe that some students’ ability to learn was being unfairly hindered by the lack of teaching of discipline language and discourse skills. In relation to graphics, design media have expanded since Ledewitz's research, from paper and card models to include digital media. Developments in digital media and technology have seen CAD software evolve from drafting tools to design tools (Hanna & Barber, 2001, p. 256). It is unclear yet whether the emergence of digital design tools may generate alternative design teaching approaches and knowledge of designing (Oxman, 2008).

The other key issue in relation to the intent of the design curriculum is the debate that exists between academics and practitioners regarding the work readiness of a graduate on completion of their studies (Crosbie, 1995; Duffy & Hutton, 1998; Gutman, 1996; Ostwald & Williams, 2008a; Salama, 2015; van Schaik & Heneghan, 2004; Vidler, 2004). There are concerns that the profile of academic staff is more weighted to theoretical aspects, with staff having only a low level of involvement in practice and building design (Cook & Hawley, 2004; Salama, 2015). Cook & Hawley (2004) highlight that the
main contributor to the problem is government/university policies that focus on measuring research output, particularly in scholarly and "obscure" journals, when compared to practice journals. They also suggest that the profession should take some of the blame as it "exploits" graduate students by demonstrating little concern for their required learning in the architecture office. Vesely (2004), who is a Head of School, counters the perspective above by stating the importance that both academics and practitioners play in generating architectural knowledge. It is her concern that, without the role of academics, the creation of architectural knowledge may overemphasise the applied engineering aspects of building design (Vesely, 2004, p. 66).

This generalised debate about the intent of the curriculum in architectural education and between the profession and academia is likely to remain constant in architecture schools as each engages with architectural knowledge differently (Ostwald & Williams, 2008a). The curriculum also remains a conundrum in this context, as the roles of designers are changing in parallel with new construction and procurement techniques for buildings. These conundrums of the curriculum are acknowledged in the broader field of education (Shaull, 1972, pp. 13–14) about the tension of present standards and conformity to the "practice of freedom", which relies on the skills of the student to be creative and critical in their solutions. Hence, architectural programs are responding to changes by diversifying studio models.

Additionally, the documented intent of the design area does not necessarily reflect or provide an accurate account of how teacher values and beliefs influence, determine, and sometimes contradict, the stated curriculum (Beinart, 1981a, p. 12). The hidden curriculum draws attention to the ideology of knowledge and social relationships rather than the explicit curriculum (Giroux, 1981). Dutton (1991) identifies that the teacher’s approach and assessment process differ from the objectives of the stated curriculum, with significant implications for student learning. Implications such as students’ adopting their tutor’s solution with little understanding of the rationale were covered in the sections on assessment (see this chapter, section 2.3.4) and instruction to support student learning (see this chapter, section 2.3.2).

The implications for the design curriculum resulting from the massification of education are seldom discussed in the literature. References are more commonly made to the approach taken in response to reduced resources. In the Australasian context, the financial pressures resulting from reduced government funding are having an accumulative effect on public universities and their management of teaching and
research (Coaldrake & Stedman, 2016; Goedegebuure et al., 2008; Marginson, 2013). As a consequence, there is a "gradual reduction of semester length and associated contact hours", forced program rationalisation, increased service teaching, overcrowding of the curriculum and new demands being implemented to balance teaching, research and administration workloads (Ostwald & Williams, 2008b, pp. 25–30). The implications of these are discussed next.

Over the past 25 years, the average number of teaching weeks has reduced from 28 to 26 weeks and in some HEIs even further to 24 weeks (Ostwald & Williams, 2008a, p. 135). This means that the total number of contact hours for the semester have been reduced. In many cases the total student contact time has been diminished further by a decrease in contact hours per week, through changes in teaching modes (i.e. from small-group teaching to larger tutorial class sizes that use exercises). As Zehner et al. (2009) report, structural changes are occurring "to improve effectiveness and efficiency of the [design] studio ...delivery" and include the “utilisation of information communication technologies (ICT)” (p. 42). It has been argued by HEIs that more effective teaching has allowed these changes to occur, however Ostwald and Williams contend that “it must have an impact on the time available for reflective learning” (2008a, p. 135). Concerns are held that a reduced teaching and learning contact hours may mean that students have reduced time to reflect (Ostwald and Williams, 2008a) and are less likely to make broader learning connections (Figure 2.1).

![Venn diagram demonstrating the minimal time to reflect in class for students](image)

The design curriculum area typically was found to include six student contact hours per week in studio (Zehner, 2008, p. 6). However, the six contact hours per week in another study reflected the ideal of academics rather than the actual time funded by schools (Williams et al., 2009, p. 7; see also Ostwald & Williams, 2008a). The figures provide a
sense of time allocated to design units, but it does not indicate the corresponding SSR and the likely instruction methods used due to the time and size of the student group.

Another implication resulting from fewer resources available for studio is the rationalisation of the curriculum that has taken more resources from most schools. As the design curriculum area forms the largest proportion of the curriculum, it has been impacted by the demand to share resources with other disciplines (Ostwald & Williams, 2008a, pp. 142–143). This can mean that the number and variety of design electives offered by schools of architecture have become restricted (Ostwald & Williams, 2008a, pp. 120–121). In addition, service teaching has been implemented where design units are co-taught between multiple design disciplines (AIA, 2008b). For example, a compulsory design unit such as an introductory unit or an interdisciplinary project can collectively teach students from architecture and allied design disciplines (interior, furniture, landscape, engineering and town planning), whereas previously the introductory design unit would have been tailored for architecture-only students. Evidence of service teaching is visible among other curriculum areas and with other disciplines in a bid to reduce the cost of units (Ostwald & Williams, 2008a, pp. 19, 160). Further, overcrowding of the curriculum has occurred as a result of the need to rationalise discipline-specific units, the increase of professional accreditation requirements and the government emphasis on the development of core/generic skills in university graduates (Ostwald & Williams, 2008a, pp. 144–145).

In summary, the studio as the curriculum is characterised by the dominance of project-based learning and students learning to think and communicate “architecturally” through the process of resolving a project (Ledewitz, 1985; Crinson & Lubbock, 1994; Bloomer, 1998). There is great diversity in project vehicles and intended learning outcomes, and a recurring debate is continuing between the academy and the architectural profession about students’ preparedness for work. It is often found that the stated curriculum differs from the enacted curriculum due to teacher values and experiences of design teaching influencing their practices (Beinart, 1981b; Dutton, 1991). Irrespective of the intent of the design curriculum, it traditionally may form the largest part of the architectural program, which is a legacy of the architectural profession to differentiate itself from engineers and surveyors by the emphasis placed on design learning (Crinson & Lubbock, 1994). This also means that the design curriculum and, therefore, the design units are more vulnerable to the effects of reduced government expenditure. The increasing absence of studio facilities are
influencing the diversification of studio models and the studio concept (Ostwald & Williams, 2008a).

In the Australasian context, the design curriculum area faces challenges from an overcrowded curriculum, rationalisation of discipline-specific units to service taught units, and decreases in semester length and contact hours (Ostwald & Williams, 2008a & b; Zehner et al., 2009). As a result, many programs have adopted a hybrid delivery model that includes lectures as well as small-group tutoring, which it is argued diminishes the time for student reflection (Ostwald & Williams, 2008a). The question remains as to how schools are responding to these changes and what forms does studio take as it apparent that the proportion of the design in the curriculum varies immensely (Ostwald & Williams 2008a, p. 131). This is despite academics perceiving that the accreditation process has led to a "national curriculum" (Ostwald & Williams 2008a, pp. 128–129; van Schaik & Heneghan 2004, p. 35).

2.5 Chapter summary

The aim of this chapter was to relate what is understood by the studio concept and to explore the contribution it makes in architectural education. The chapter investigated the extents of studio as place, culture, teaching approach and curriculum. In the chapter, the studio concept and design teaching were considered together, as it was difficult to fully separate them. The studio may have begun as a physical venue but soon evolved or “blurred its boundaries” with the pedagogy as it adapted to different settings. From this background it is understandable that multiple interpretations of the studio concept and design teaching exist. Variations have increased in the 2000s due to a globally competitive market for higher education and the massification of higher education and its challenge to the management of universities.

The following issues about the studio concept are drawn in relation to the themes of place, culture, teaching approach and curriculum. The key issues for the studio as:

1. a place, are the loss of studio facilities and the need to develop teaching approaches and studio culture in new ways (Ostwald & Williams, 2008a).
2. a culture, are that both positive and negative behaviours may be fostered. Schools are therefore focusing on developing studio cultures where an atmosphere of peer learning and mentoring occurs through the teaching approach, assessment and values promulgated.
a teaching approach, are the preparedness of teachers’ (academics, graduate architects and eminent practitioners) to instruct and engage students in project-based learning as their central expertise is in architectural designing. Studies are continuing to question the effectiveness of commonly applied methods in one-on-one, internal crits and small-group tutoring as they lead to less able students adopting passive compliance and/or dependency approaches to learning (Beinart, 1981b; Schön, 1987; Webster, 2004 & 2008). The other significant issue is the adoption of the blended delivery model in response to reduced resources.

the curriculum, are the lessening of profile and time devoted to design and design supporting units in the curriculum timetable due to the inclusion of graduate attributes, rationalisation of units and overall reduction in student contact time.

As a result, it is contended that our current understanding of the studio concept has more of an ideological and customary basis that fragments according to the different settings. It is also contended that the reduction in resources is having a greater influence on the studio forms than accreditation processes and quality assurance regimes implemented by government. There is also evidence of academics engaging with learning and teaching approaches outside of the architecture discipline in response to reduced resources or as a way to justify departures from discipline traditions. In conclusion, studio concept and its forms are ubiquitous to architectural education, discussed frequently, but never really defined or sufficiently situated in its context. The studio is an ideal and encompasses many variants and the implications for student learning and design teaching are unknown. The need to capture the studio, even though problematic, is argued by Salama (2015) and Ostwald & Williams (2008a) as important in order to understand and stem the potential loss of productive studio models. To this end, a more common language and/or framework is required to promote discussion and to characterise the diversity in studio models.

With existing knowledge of studio concepts and its forms mapped, the following chapter reports the rationale for the research design employed in this study. It explains how the research questions will facilitate a better understanding of the trends in studio Australasian universities. This will then enable schools to interpret and understand their context in relation to others in Australasia as well as the implications occurring from massification of higher education and what this means.
3 Research Methodology

In the previous chapter the diverse nature of the studio concept and its forms were outlined and several issues identified. Exploration of these issues is reflected in the research questions (RQ1–4).

RQ1: How is the term studio conceptualised within architectural education in the Australasian context?

RQ2: What are the factors that have led to the diversity of studio models in Australasia?

RQ3: What are the implications that arise from having the diversity of the studio models?

RQ4: What does the focus on the studio reveal about architecture education and its conditions in Australasian universities?

This chapter provides the rationale of the research design applied to exploration of these research questions. The intent of the study was to capture an in-depth understanding of the studio concept and its various forms from schools in Australasia. A pragmatist worldview (Creswell & Plano Clark, 2011, pp. 40–43; Lincoln, Lynham, & Guba, 2011) was employed to develop the research study, as the focus was problem-centred (questions more than method). It also allows for and values qualitative and quantitative research methods to explore the consequences of the changing higher education landscape on the studio. To achieve this end a mixed methods approach (Creswell & Plano Clark, 2011; Greene, 2007; Tashakkori & Teddlie, 2003), largely based on qualitative inquiry, was employed to understand the variation in schools responses. The qualitative inquiry was embedded with quantitative data on school profiles. The chapter also describes the data collection and analysis methods used. It concludes by outlining the approaches taken to ensure rigour and trustworthiness of the study in terms of self-awareness of researcher bias and practices, as well as triangulation of data.

3.1 Research design

The decision to employ a pragmatist worldview using a mixed methods approach (Creswell & Plano Clark, 2011; Greene, 2007; Tashakkori & Teddlie, 2003) was influenced by the nature of the research questions. The Ostwald and Williams (2008a
& b) study left unanswered questions, most notably “What were the multiple meanings held by schools as to the concept and forms of the studio and what were the implications for the teaching practices used in schools?”. A mixed methods approach (Creswell & Plano Clark, 2011, pp. 40–42) allowed the question of the architectural studio and its vulnerability in the Australasian context to be built up by participant meanings drawn from existing and new data. Further, the theoretical stance of a social science lens was most suited to proposing a framework as to why the studio form had varied.

The research design for the study (Figure 3.1) began in a conventional format (Creswell, 2005, p. 44) with the establishment of the aim of the research and a set of provisional, open-ended research questions. Open research questions are indicative of a qualitative approach aimed at understanding “why” rather than solely documenting “what”.

Figure 3.1  Diagram of the research design
A review of the literature presented in Chapter 2 aided the process of locating the studio concepts within the context of architectural education and confirmed the issues being experienced in institutions. It highlighted that many issues exist around studio and the models in operation, and substantiated the research questions. A two-stage process for data collection and analysis was then developed to better understand studio trends and factors impacting on studios in Australasian schools. The rationale for the two stages was that it allowed for the secondary analysis of the studio data collected by Ostwald & Williams (2007a & b) to form Stage 1. This provided the initial context to then allow a smaller and purposeful sample to be identified for Stage 2. The smaller sample accommodated the collection of data from multiple methods, such as series of interviews, document analysis and targeted observations of school facilities.

3.1.1 Stage 1: Secondary analysis of the Australasian data

Stage 1 involved the secondary analysis of the studio data collected by Ostwald and Williams (2007a & b) that asked “what is the studio?” and “how does the studio present in your school?” It provided a unique data set from 112 full-time academics (35%) from 16 Australian, three New Zealand and one Papua New Guinean school (Ostwald & Williams, 2008a, pp. 28, 178). However, the Papua New Guinean data have been excluded for secondary analysis, as there was insufficient data to make fair analysis/representation (Appendix 3.1 Table A). These represented all accredited university-based programs. The data collection involved interviews with two academic managers and a focus group with academic staff from each school (Appendix 3.1 Tables B & C). The data came in the form of two restricted documents, one containing excerpts from the interviews and focus groups on studio (2007a) and the other document containing the questions used to collect data from the interviews and focus groups (2007b). The Ostwald & Williams (2007a & b) restricted documents were made accessible for the purpose of this study. As noted earlier, I was a member of the Ostwald and Williams research team (2008a) and was involved in the process of collecting data from seven of the 19 schools. The objective of the secondary analysis was to identify the overall trends and differences occurring in the studio concepts and its forms in Australasia. It also facilitated the process of selecting a purposeful sample and informing the interview questions in Stage 2.

The method employed to carry out the secondary analysis of the Australasian data (Ostwald & Williams, 2007a & b) was qualitative content analysis (Julien, 2008, pp. 121–123) to reinvestigate the data in light of the research questions (RQ1–4).
Qualitative content analysis was employed as it allowed both an inductive and deductive process in the coding. It was inductive as the coding process began from the particular to the general, and deductive because it recognised the influence that pre-existing knowledge about the studio may have had on the process. The purpose for using this method was to balance the construction of themes by allowing the academic “voice” to guide the process without forcing the analysis into pre-existing concepts (Ezzy, 2002, p. 88). The processes involved in the analysis of the data and coding are described further in section 3.2.5.

The coding framework developed for Stage 1 is shown in Table 3.1 where key issues influencing the studio concept and its forms in Australasia are listed. As shown in Table 3.1, the key themes are the studio concept and issues impacting on the studio form. The secondary codes reflect the diversity of responses to the key themes. For example, the responses to the studio concept include physical place, teaching methods and/or curriculum design. These secondary codes also correspond with earlier studio definitions established in Chapter 1 (Ostwald & Williams, 2008a; Zehner et al., 2009). Culture is the exception, as it is difficult to separate the overlap with the physical place or teaching methods codes. However, culture does emerge as a secondary code for the issues impacting on the studio form. Finally, the tertiary codes capture further issues that contribute to diversification of the secondary codes. The tertiary codes are presented in Chapter 4, Results.

Table 3.1  Stage 1: The studio concept and the key issues influencing its forms

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: The studio concept</td>
<td>Physical place</td>
<td>Presented in Chapter 4, Results.</td>
</tr>
<tr>
<td></td>
<td>Teaching methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum design</td>
<td></td>
</tr>
<tr>
<td>Theme 2: Issues impacting on the studio form</td>
<td>Student disengaged</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staff contact time reduced</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative changes to curriculum structures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced studio facilities</td>
<td></td>
</tr>
</tbody>
</table>

The data assigned to the studio concept theme were also analysed to understand if consistent responses were emerging from the:
same schools. This analysis involved comparing the responses made by the two academic managers who were separately interviewed with the consensus from the academic staff focus group data. The data contained a minimum of two and a maximum of three responses from different participants in each school;

- school accessibility to studio facilities, patterns emerging between schools that provide the majority of their students with accessibility to studio facilities to those schools principally using teaching spaces; and

- school locale, involving potential differences according to country (Australia and New Zealand) policy context and funding of higher education, states of Australia and New Zealand and a metropolitan or regional centre.

Table 3.2 shows how the data were tabulated to identify the different patterns in the studio concept theme. The table format allows the position of respondents according to physical place, teaching methods and curriculum design. The secondary codes head both row and column headings as the majority of studio responses involved two of the three codes. In addition, each response is recorded with details of the school’s locale, the respondent’s academic position, and their school’s accessibility to studio facilities (for most of the student population). This was achieved through abbreviations and colour, see Table 3.3 for list of abbreviations. Respondents from Charles Darwin University, Deakin University, University of Canberra, University of Newcastle and University of Tasmania are represented as regional-based schools, which also assists in maintaining their anonymity. For the same rationale of anonymity respondents from the three New Zealand schools are represented as New Zealand.

Table 3.2  An example of the table format employed to illustrate school studio responses

<table>
<thead>
<tr>
<th>Physical place</th>
<th>Teaching methods</th>
<th>Curriculum design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical place</td>
<td>REG-AM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REG-St</td>
<td></td>
</tr>
<tr>
<td>Teaching methods</td>
<td></td>
<td>VIC-AM</td>
</tr>
<tr>
<td>Curriculum design</td>
<td></td>
<td>VIC-AM</td>
</tr>
</tbody>
</table>
Table 3.3 List of abbreviations used to distinguish respondents in Stage 1

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Respondent was from a school of architecture located in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>New South Wales (state of Australia)</td>
</tr>
<tr>
<td>NZ</td>
<td>New Zealand (all three schools located on the North Island)</td>
</tr>
<tr>
<td>QLD</td>
<td>Queensland (state of Australia)</td>
</tr>
<tr>
<td>REG</td>
<td>Regional-based university in Australia (Charles Darwin University, Deakin University, University of Canberra, University of Newcastle and University of Tasmania)</td>
</tr>
<tr>
<td>SA</td>
<td>South Australia (state of Australia)</td>
</tr>
<tr>
<td>VIC</td>
<td>Victoria (state of Australia)</td>
</tr>
<tr>
<td>WA</td>
<td>Western Australia</td>
</tr>
</tbody>
</table>

Respondent’s academic position:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>Academic manager (Head of School and/or Program Head) interviewed in schools of architecture in Australasia (Ostwald &amp; Williams, 2007a &amp; b)</td>
</tr>
<tr>
<td>ST</td>
<td>Academic staff focus group (Ostwald &amp; Williams, 2007a &amp; b)</td>
</tr>
</tbody>
</table>

Respondent’s school accessibility to studio facilities:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXX-XX</td>
<td>For the majority of the student population</td>
</tr>
</tbody>
</table>

The results of the data analysis format in Table 3.2 contributed to identification of the representative sample when combined with data from the 2008 Architecture Schools of Australasia (AIA, 2008b) in that the comparison revealed the relative differences in school size, according to student enrolments in 2007. The table was, therefore, reformatted to allow the comparison of the studio concept, the accessibility to studio place and school size for all schools, an example of which is shown in Table 3.4. The full version is not published in this dissertation, as it would risk the identity of schools and the participating academics being able to be identified, which falls outside the ethics requirements approved for this study (see Appendix 3.2). Through drawing these data together, correlations were found which provided sufficient context to select a purposeful sample for Stage 2, which captured the maximal variation (Creswell, 2005, p. 204; Patton, 2002). The process used to determine the sample size and identification of participants is described later (section 3.2.4). It was established that 10 academics from six schools was a sufficient sample size as it represented the key differences from the Australasian data. Generally a small number, four to 10, is suggested when cases
are studied (Creswell & Plano Clark, 2011, p. 174). However, given the small sample size the results cannot be generalised beyond the sample (Sandelowski, 2001, p. 238).

**Table 3.4**  
An example of the table format for school comparisons and the studio concept

<table>
<thead>
<tr>
<th>Criteria</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1m</td>
</tr>
</tbody>
</table>

The studio concept, includes:

| Physical place |   |   | X |
| Teaching approach | x | x | X |
| Design curriculum | x | x | X |

The studio place:

| Dedicated studio place for most students | X |
| Teaching-only place | x | x |

Student enrolments:

| (rounded to nearest 50, schools range from 200 to 650) | 500 | 350 | 500 |

The nomenclature devised for the schools in Table 3.4 shows the accessibility to studio facilities or teaching spaces and the school size. The purpose of this is to assist the reader to recall these key characteristics of the school. These are listed in Table 3.5. The first letter represents the accessibility to studio facilities, “S”, or teaching spaces, “T”. A numeral then follows to signify the number attributed to the schools with studio facilities and teaching spaces. The final lower case letter signifies the school size in relation to student enrolments.

The secondary analysis of the Australasian data contributed to answering RQ1 and RQ2 by providing introduction on the broad variations in studio concepts and factors informing the studio form. However, the context and the reasons behind these broad variations and factors remain unresolved. In addition, evidence of significant changes to design teaching practices emerged in the interview response to reduced resources and expanding student enrolments. Stage 2 answered these questions.
Table 3.5  List of abbreviations used to distinguish respondents in Stage 2

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>l</td>
<td>Large architecture school with more than 500 students</td>
</tr>
<tr>
<td>m</td>
<td>Medium architecture school that had 350 to 500 students</td>
</tr>
<tr>
<td>s</td>
<td>Small architecture school up to 350 students</td>
</tr>
<tr>
<td>S</td>
<td>Accessibility to studio facilities for most of the school population</td>
</tr>
<tr>
<td>S1m</td>
<td>School number one with accessibility to studio facilities and includes 350 to 500 students</td>
</tr>
<tr>
<td>T</td>
<td>Accessibility to teaching spaces</td>
</tr>
<tr>
<td>T2s</td>
<td>School number two with accessibility to teaching spaces and up to 350 students</td>
</tr>
</tbody>
</table>

### 3.1.2 Stage 2: Purposeful sample

To better understand the studio concept and its forms, the purposeful sample allowed the key issues identified in Stage 1 of physical place, teaching methods and the curriculum to be explored further. The method utilised to achieve these objectives was first to visit the schools from the purposeful sample to observe the facilities used for design learning and teaching. This aligned with the physical place theme. In response to the teaching methods theme, academics from the sample groups were identified and interviewed about a recent design unit that they had taught. The curriculum theme was investigated by examining the unit outlines and other documents that were related to the design units discussed. The use of multiple research methods allowed cross referencing of the academic interviews and supporting documents (unit outlines and materials) to reveal the level of alignment between academics’ understanding, what was documented about the studio, and the observations of the learning and teaching spaces. The method also responds to the studio literature (Ashton, 1997; Beinart, 1981a; Webster, 2004b), which indicated instances where academic reflections did not always match the applied or enacted curriculum or the student studio experience, hence the employment of multiple research methods (Kane, Sandretto & Heath, 2002).

The data collection process in Stage 2 involved each academic being interviewed twice. By adopting this approach, a more in-depth interviewing process resulted, with the second round of interviews unpacking the issues identified in the first interviews (Seidman, 1998). The questions for the interviews were developed as a means of providing answers to the research questions (RQ1–4) and issues arising from the preliminary analysis of the Australasian data (Stage 1), see Figure 3.2. To assist the
discussion of the studio, participants were asked to reflect on a recent design unit that they had taught. The first interview was held in person and facilitated observations of the school studio facilities and the collection of relevant supporting documents, e.g. unit outlines and descriptions, and publications related to the design unit discussed. The second interview took place a few weeks later by telephone, after the analysis of the transcripts of the first interview. Data were collected in accordance with international standards of ethical human research (University of Newcastle approval number H-496-0607 in Appendix 3.2).

The process used to analyse the collected data was consistent with methods employed in Stage 1, which involved a qualitative content analysis method (Julien, 2008, pp. 121–123) and a framework method (Spencer, Ritchie, & O’Connor, 2003). These are described in section 3.2.5, Data analysis. The framework method was introduced as the

Figure 3.2   Overview of Stage 1: Australasian data and Stage 2: purposeful sample showing relationship between research questions and interview topics
themes emerging from the data analysis were comparable with learning and teaching frameworks, therefore, a recognised framework was adopted, namely Biggs’s (2003) constructive alignment system for quality learning and teaching. The framework also provided the means to manage the 33 documents collected (interviews, unit outlines and publications) and the analysis of 439 pages of interview transcripts. Biggs's (2003) framework was selected as it is prominently recognised and employed in higher education in Australasia and the UK. The framework includes themes of the philosophical position towards learning and teaching, institutional climate, curriculum, environment (setting/climate), teaching methods and assessment (see Table 3.10). The environment theme is an adaptation of Biggs’s framework since it is referred to as climate, which means that the physical setting is not included. Also, choosing to use the term “environment” further articulates the difference between environment and the institutional climate theme. From the employment of the framework, a series of subthemes emerged, and most of these diversified further and formed a tertiary level of coding (Table 3.10).

To assist in the process of understanding and synthesising the diversity of information for each school, a radar chart was employed. The radar chart was considered most appropriate to capture variations in studio responses as each axis radiating from the centre of the radar chart records the school’s position in relation to the key themes, and then these are linked to illustrate the studio “form”. With all schools documented on the one radar chart, visual assessments were made of both the overall studio forms and the similarities and differences on an individual theme. The process of making visual assessments relied on “counting” or “quantitizing” (Sandelowski, 2009) school responses, and this is described in section 3.2.5.1. The process of making visual assessments assisted in the development of the studio models, and in identifying factors influencing diversifications in RQ2 and implications from having diverse studio models in RQ3.

In summary, the two-stage data collection process allowed for trends and issues of the studio concept and its forms in Australasia to be situated in Stage 1, allowing a more in-depth study through a smaller purposeful sample in Stage 2. The research methods were mainly qualitative based (documents, interviews, observations) but also involved the embedding of quantitative data from the AIA School Profiles (AIA, 2008b) and the study by Ostwald & Williams (2008a), as a way to better understand the conditions and patterns emerging. With the reporting of these results, responses could then be made.
to the research questions (RQ1–4) to better understand the studio concept and its forms in architectural education in Australasia between 2007 and 2011.

3.2 Data collection and analysis

This section provides a description of the data collection and analysis methods as referred to in the research design (section 3.1). The methods described include the use of documents, interviews and studio observations to collect data, the identification of sample size and participants and the data analysis processes. The data analysis processes involve coding, the emergence of themes and the use of a framework (Spencer et al., 2003) and the presentation of data using charts and graphs (Microsoft Excel, Mac, 2011).

3.2.1 Documents

Although documents are often considered a “secondary” source of data (Wellington, 2000, p. 110), their role in this research was key to both stages of the research design (section 3.1). In Stage 1, the principal method for data collection and analysis was solely based on restricted (Ostwald & Williams, 2007a & b) and publicly accessible documents collated by the AIA on school profiles that allow key studio variables to be identified and a purposeful sample to be selected (section 3.2.4). In Stage 2, documents, including unit outlines and descriptions and relevant scholarship on learning and teaching (SoLT), provided a way to cross reference participant interview responses on studio and design teaching, making the data collection and analysis process more rigorous.

Ostwald and Williams's (2007a & b) data were the principal focus of Stage 1. These were considered restricted sources as they have not been published and were used in the analysis of their work. Permission to use these data was obtained for the purpose of answering some of the questions left unanswered by the results of their study. These included understanding the multiple meanings held by schools with regard to the studio concept and its forms and the implications occurring from diversification in studio models. The data (Ostwald & Williams, 2007a) were unique, as no such data had previously existed which captured the opinions of 35% of full-time academics via interviews or focus groups in Australasia, making the studio responses both representative and comparable.
The data came in the form of a working document (Ostwald & Williams, 2007a), and contained 55 excerpts on the studio from the interview and focus group transcripts. These excerpts had been selected and prepared by a research assistant for Ostwald and Williams to draw their conclusions on the design studio. The 55 excerpts encompassed responses from each school (n=19) in Australasia. Every school had at least two different respondents from the academic manager interviews and the staff focus group. All the excerpts relating specifically to the studio involved approximately 16,000 words. The excerpts were arranged in five themes and sub-titles (Appendix 3.3). For the purposes of the research reported in this thesis, the themes and sub-titles have been removed from the document (Ostwald & Williams, 2007a) to cleanse the data of previous thematic structure. The excerpts were uploaded to Microsoft Excel: Mac 2011 to undertake coding analysis. The other Ostwald and Williams (2007b) document contained the schedule of interview and focus group questions. These questions were designed to be open-ended and trigger further exploration or for new ones to emerge (Creswell, 2005). All participants were asked to give their interpretation of what the term "studio" meant. The line of questions applied was extended in the focus groups to issues confronting the studio and what constituted the ideal studio time and class size. There were other broadly based questions concerning architectural education generally for the purpose of prompting further discussion of the studio.

The secondary analysis of Ostwald and Williams’s (2007a & b) documents in Stage 1 of the research design (see section 3.1.1) identified trends in the studio concept and evidence of adapting design teaching. More insights were then achieved with links made to school profile data (AIA, 2008b). The school profile data contribute the location (country, capital city, regional), university affiliation, size (student enrolments) and accessibility to studio facilities, and the resulting Table 3.4 allowed school responses to the studio to be understood in a greater context. In addition, the selection criteria were used to select a purposeful sample for more fine-grained study into the studio (see section 3.2.4).

In Stage 2 of the research design (see section 3.1.2) a variety of documents were collected from participants who described the design unit for which they were responsible. These documents were the vehicle to understanding the participant’s studio concept and design teaching methods in the interview process. The documents were mainly design unit outlines and student information, including assessment tasks and criteria. These varied greatly in detail between schools and ranged from two to 46 pages long. The unit outlines were particularly useful in establishing the teaching
patterns, contact hours and the approach to assessment. Any questions relating to the documents were clarified in the second interview. All documents were analysed using spreadsheets in Microsoft Excel: Mac 2011.

### 3.2.2 Interviews

The interviews were the central research method used to collect data from the purposeful sample. The interview was considered the most appropriate way to capture and compare 10 academics’ perceptions of and perspectives on the studio. A survey questionnaire can perform a similar role, however, an interview can gather “depth” and “richness” (Rubin & Rubin, 2005, p. 13) to provide rich descriptions (Geertz, 1973).

A face-to-face interview will generally elicit a more detailed and complete response to an open-ended question than a written response (Singleton & Straits, 2010, p. 282). The face-to-face format also presented an opportunity to observe the context (Singleton & Straits, 2010, p. 283). The limitations of interviews relate to cost, the volume of data generated and the effect of the researcher. The effect of the researcher is a consistent weakness and strength identified within qualitative-based inquiry methods (Patton, 2002). The researcher can distort the quality of the data due to:

- degree of social interaction,
- ambiguity in questions, leading questions or excessive prompting,
- fatigue and inattention and cheating (Wellington, 2000, pp. 82–83).

The researcher can also become “a participant in the conversation” by the process of interpreting and presenting the “other” voices (Ezzy, 2002, p. 109). However, this perspective is qualified by stressing the important role that rigour and systems play in the analysis of the data (Ezzy, 2002).

Despite the limitations described above, the interview was the principal method used in Stage 2 of the research design (see section 3.1.2). The interview was consistent with the goal of understanding academic perceptions of the studio role and context (Seidman, 1998, pp. 4–5). The method involved emailing each participant an invitation to partake in a series of interviews on studio. The email contained an information statement (Appendix 3.4) and consent form (Appendix 3.5). Participants were assured that the information collected would be securely stored and presented in such a way as to maintain their anonymity, in line with the protocols articulated in the ethics application (Appendix 3.2).
The protocol for each interviewee was that the first interview was conducted in person at a time and location convenient to the participants (Figure 3.3). Signed consent forms were collected at the interview. The second interview typically followed within three weeks and took place by telephone. Sometimes this was difficult to achieve and the period between first and second interview was extended. Both interviews were allocated one hour as recommended by Seidman (1998) to indicate the time required of the participant. One hour also strikes the balance of adequate time for a semi-structured in-depth interview while avoiding the problem of generating too much data (Seidman, 1998). The data collection period was from September 2009 to January 2011 (Table 3.6). The data collection period took longer than planned as the sample size was increased after preliminary data analysis. Academics from S3s and T3l schools were interviewed a year later.

![Figure 3.3 Interview protocol](image)

Table 3.6 Stage 2 Data collection period

<table>
<thead>
<tr>
<th>School</th>
<th>T1m</th>
<th>September 2009 – October 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2s</td>
<td>September 2009 – October 2009</td>
<td></td>
</tr>
<tr>
<td>S1m</td>
<td>September 2009 – December 2009</td>
<td></td>
</tr>
<tr>
<td>S2m</td>
<td>October 2009 – November 2009</td>
<td></td>
</tr>
<tr>
<td>S3s</td>
<td>November 2010 – January 2011</td>
<td></td>
</tr>
<tr>
<td>T3l</td>
<td>November 2010 – December 2010</td>
<td></td>
</tr>
</tbody>
</table>

The decision to use the two separate and sequenced interviews was an adaption of Seidman’s (1998) approach to the In-Depth, Phenomenological Interviewing model. The Seidman model involves a series of three interviews, the first of which establishes the context. The second interview focuses on the concrete experiences of the academic
in relation to their situation. The final interview asks the interviewee to reflect on their concrete experiences. The series of interviews is also understood to better accommodate idiosyncratic factors such as illness or a busy day colouring their responses. Another interview allows an opportunity to clarify an earlier response. Furthermore, using a series of interviews facilitates a building of trust with the interviewer.

Even though the Seidman model (1998) indicates three separate interviews, rather than the two used with participants in this research, the latter assures a more manageable process in terms of time and resources required to collect, transcribe and analyse data. It also had less of an impact on participant time. Context and concrete experiences of the academic and their situation were combined in the first interview, while the purpose of the second interview was to clarify responses from the first interview, questions from the documents collected and reflections on their studio. It was believed that if there were any issues arising from the second interview that these could be clarified through a further follow-up phone conversation. This proved unnecessary because the academics understood the process of interviews better than the general populace.

An interview schedule terms of reference was developed to systematise the topics covered, without creating a rigid framework. This was achieved by the use of semi-structured and open-ended questions (Appendix 3.6). This type of questioning allows the participants to determine significant experiences, introduce new concepts and respond using their own terminology (Patton, 2002; Seidman, 1998). It is important that the interview process captures the perspective of the participant, rather than the researcher (Burns, 1997, pp. 330–331). The terms of reference provided a means by which to track participant responses. The intent was to minimise the number of interjections made to allow participants to express their perspectives freely (Patton, 2002). Prompts were used judiciously as a way to deepen responses. The researcher also took an “active listening” role by displaying respect through verbal and non-verbal forms of communication to encourage participant involvement and to develop rapport (Burns, 1997, pp. 332–333; Patton, 2002, pp. 365–366).

The interview questions were informed by the preliminary analysis conducted during Stage 1: Australasian data, and the literature review. The questions from the first interview included identified issues such as teaching background, the studio context, description of the “studio” (teaching approaches, strategies to engage student...
learning), concerns and whether or not their approach to “studio” was shared or replicated in the school (Table 3.4). The second interview began with questions regarding the clarification of statements from the first interview and sought reflections on the influences and challenges faced by their approach to studio. The interviews were audio-recorded to ensure an accurate record (Mills, 2002, p. 60). Some notes with early insights were also recorded during the interviewing process (Patton, 2002, p. 383). As Patton (2002) notes, the practice of taking notes and annotating early insights conveys a level of interest to the participant regarding their contributions.

### 3.2.3 Observations

The purpose of the observation activity in Stage 2 was to document the types of learning and teaching spaces to better understand the physical learning and teaching places available at each school studied (Patton, 2002). Observation refers to a planned and methodical viewing for purposes of extracting meaning rather than casual watching (Singleton & Straits, 2010, p. 362). Observations were made from an outsider perspective as the learning and teaching places were “onlooked” via a guided tour by an academic in the study or a nominated student (Patton, 2002, p. 277). The guide was not questioned nor did they form a part of an interview. The role of observations was disclosed to the tour guides to reduce disturbance or possible anxiety. The focus of the observation was narrow in terms of categorising whether or not the learning and teaching spaces best fitted within the following:

- dedicated studio workspace for most students;
- mix of dedicated and hot-desking; or
- teaching space only.

Digital images were taken as a record, not for publication purposes but as a means of prompting reflections by the researcher about the spaces and potential. The duration of the observations were short, 30 to 60 minutes, one-off and organised at the convenience of the academic of the institution being visited. All observations were made outside class time, and in some cases students were observed in dedicated studio workspaces.

The observations provided a deeper understanding of the studio facilities referred to during the interviews. They also assisted in understanding the physical learning and teaching spaces at each school studied, as well as allowed an evaluation of the facilities similarities and differences, as the description was often limited in the interviews. The
observations also provided another source to better understand the types of activities occurring in the spaces. An example of this was the evidence of students personalising their dedicated workspaces and work in progress being left at the site.

The limitations associated with observation are the effects upon the researcher (Patton, 2002, p. 326). Even though the application of the observation method in the study is narrow and based on the physical setting, the researcher has an effect on how the observations are recorded, what is recorded and how these are interpreted and presented. For example, the short period of observation may limit the interpretation and the non-participant role removes actual experience of the setting (Creswell, 2002, pp. 211–212). According to Patton (2002, p. 326) these concerns are partly ameliorated by recognising and monitoring these effects.

### 3.2.4 Purposeful sample size and identification of participants

Stage 2 of the research design (see section 3.1.2) involved a more in-depth understanding of the studio and design teaching methods, which required a smaller number of participants and an increase in the amount of data collected. The approach adopted to identify a purposeful sample of the studio concept and its forms in schools was a maximum variation (Patton, 2002) strategy. The criteria to determine the best sample of studio variants evidenced in schools included:

- studio concept across the themes of physical place, teaching approach and design curriculum;
- studio place themes of dedicated studio facilities for most students, or a teaching-only place; and
- school profile data (AIA, 2008b) in relation to school size (student enrolments), school location (country and capital or regionally based), university affiliation (e.g. Group of Eight, first universities established in Australia or the Australian technical universities that developed from a technical college/institute of technology background among others).

The inclusion of the school profile data (AIA, 2008b) acted as an indicator of the size of school and the potential influence of location or university affiliation on resourcing. Another factor that may influence the approach to the studio and its form is the number of full-time enrolled students.
It was found through the application of these criteria that six schools of architecture satisfied the maximum variation sampling (Patton, 2002). Table 3.7 provides details of the six schools and the selection criteria employed, excluding their locality and university affiliation to maintain school and academic staff anonymity. Two schools of architecture were excluded from consideration: Charles Darwin University and the University of Tasmania. Charles Darwin University was removed because it was the only school providing a three-year undergraduate degree course with 35 students. The next smallest school had over 200 students, indicating the significant difference in scale. The University of Tasmania was excluded due to the researcher’s employment at this institution. Including the University of Tasmania may have been considered a conflict of interest.

Table 3.7  Schools selected for the purposeful sample

<table>
<thead>
<tr>
<th>Criteria</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1m</td>
</tr>
<tr>
<td>The studio concept, includes:</td>
<td></td>
</tr>
<tr>
<td>Physical place</td>
<td>x</td>
</tr>
<tr>
<td>Teaching approach</td>
<td>x</td>
</tr>
<tr>
<td>Design curriculum</td>
<td>x</td>
</tr>
<tr>
<td>The studio place:</td>
<td></td>
</tr>
<tr>
<td>Dedicated studio place for most students</td>
<td>x</td>
</tr>
<tr>
<td>Teaching-only place</td>
<td>x</td>
</tr>
<tr>
<td>Student enrolments (rounded to nearest 50, schools ranged from 200 to 650)</td>
<td>500</td>
</tr>
</tbody>
</table>

In total, 12 academics from six schools were identified and accepted the invitation to participate in Stage 2. Ten participants were identified from Ostwald and Williams (2007a) document which contained excerpts from interviews of academic managers and staff focus groups. The remaining two participants were recommended by their Heads of School. This was a consequence of not being able to identify the respondent from two academic focus groups. During the process of collecting data, the two academics recommended by their Heads of School were unable to continue beyond the first interview. The data collected from these two academics (first interview) was
disregarded in the analysis because the process of the participant clarifying and reflecting on their design teaching experience was incomplete.

The final composition of the sample (n=10) was two academics from two different New Zealand schools and eight academics from four Australian schools, each from a different state (Table 3.8). This is consistent with the maximum variation approach used in sampling the Australasian data. It would have been more ideal to have two academics from each New Zealand school but circumstances after the first interview made it impractical to visit these schools given limited resources. One academic was unable to continue and for another academic their more recent experiences related to another school. In all, the involvement of two academics from two different New Zealand schools and eight academics from Australian schools was deemed relatively consistent with the academic population as the total number of schools in New Zealand and Australia is three and 16, respectively. All academics involved in the study had a minimum of 10 years teaching experience (Figure 3.4), and half of the participants had experience in teaching in multiple institutions, including overseas. In addition, all academics held senior leadership roles such as Head of School, Program Coordinator or the Chair of Learning and Teaching so they were well informed of the studio concept and form in their school.

Table 3.8 Composition of the purposeful sample

<table>
<thead>
<tr>
<th></th>
<th>Number of Schools</th>
<th>Number of Academics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>4</td>
<td>2 per School</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2</td>
<td>1 per School</td>
</tr>
</tbody>
</table>

Figure 3.4 Participants’ design teaching experience from the purposeful sample
The sample size of six schools (Table 3.8) was initially smaller and comprised academics from four schools (T1m, T2s, S1m and S2m). This decision had been informed by the recommendation that a small sample is better for this type of qualitative approach, such as four to 10 (Creswell & Plano Clark, 2011, p. 174). When it was taken into account that the initial proposal involved four schools with two academics, this equated to a sample of eight. Findings from the initial data analysis suggested further data might be required to fulfill the full range of variations indicated in Stage 1. The initial data analysis of the four schools showed limited variation between the schools with studio facilities. This also existed between the schools with teaching spaces. There were two options: to collect further data or identify other possible explanations (Patton, 2002, p. 437). In this case, the decision was made to add schools S3s and T3l as this would provide more variation in the school size and expand the number of states in Australia involved in the study. Both time and resources permitted the expansion of the sample group in Australia. This decision also strengthened the persuasiveness and trustworthiness of the data collection procedure by the sample process being iterative (Creswell & Plano Clark, 2011, p. 172; Miles & Huberman, 1994).

School S3s provided another example where studio facilities were accessible to students. It contrasted with the other two schools (S1m & S2m) with a smaller number of students in a regional centre and a new university affiliation. School T3l brought a larger school that used teaching spaces to the sample, as well as another state locality in Australia.

3.2.5 Data analysis

This section outlines the processes associated with the data analysis component of the study. The discussion provides the rationale for a qualitative approach adapted for the purposes of coding and the identification of emergent themes from the data collected in Stages 1 and 2. The approach expands in Stage 2 as a consequence of the framework approach (Spencer et al., 2003) being adopted and the necessity of synthesizing a large volume of data and visually representing the school studio models.

3.2.5.1 Coding process

The approach applied to the data analysis was based on qualitative content analysis (Julien, 2008), and informed by other related references to qualitative analysis methods (Bryman, 2008, p. 554; Creswell, 2005; Ezzy, 2002; Patton 2002; Rapley,
The qualitative content analysis approach (Julien, 2008, pp. 121–123) is both inductive and deductive, where pre-established themes are employed or themes emerge, or a mix of both (Wellington, 2000, p. 142). The process began with the familiarisation of the documents, with initial coding, grouping and reducing codes and the development of themes. In practice this meant that the documents were read multiple times with notations made in the margins relating to potential issues and the codes to use.

After this familiarisation process, the tool for coding transitioned from hand-recorded notes to the utilisation of Microsoft Excel: Mac 2011. Another sequence of coding took place where the focus shifted to “constant comparisons” of the studio concept and its form by those interviewed, for the purpose of understanding the similarities and differences, cultural assumptions and use of language (buzz-words, common and unusual use of words) (Ezzy, 2002, p. 90; Rubin & Rubin, 2005, p. 29; Wellington, 2000, p. 145). It was important that the “...vagaries, uncertainties, and ambiguities” from the data were identified and understood so as to appropriately code (Patton, 2002, p. 437).

Table 3.9 shows the list formed from the “open coding” process, with the far right column providing evidence as to how this was rationalised into a framework approach. For example, in “what is studio?” the open codes were collapsed into three sub-themes of physical place, teaching method and curriculum, as studio descriptions were found to consist of one or two of these at the participants’ schools. As discussed earlier in the research design (see section 3.1), this aligned with definitions of the studio (Ostwald & Williams, 2008a; Zehner et al., 2009) but studio culture was purposefully omitted as it was not referred to in the majority of responses or, when it was identified, it was unclear how it differentiated from the teaching approach as collaborative/peer learning or the physical place. For the purposes of this research, the studio culture is situated in the “studio characteristics” theme, and discussed there. Another example of the reduction of open codes into a framework (Spencer, et al., 2003) was the theme “issues impacting on the studio form” where sub-themes emerged that captured not only the key issues but also instances where unique issues were identified, such as the commuter campus (Creswell, 2005).

The data analysis process for Stage 2 followed the coding process as described above but adopted an analysis framework method (Ritchie, Spencer, & O’Connor, 2003) at the conclusion of “open coding”. Preliminary analysis indicated that the majority of the themes emerging belonged to learning and teaching framework. So in response to this, the decision was made to adopt an analysis framework method (Ritchie et al, 2003). In
this method a “recognised” framework is employed to order and synthesise the data (Ritchie et al., 2003) so it assists the comparison between participant responses and identifying variations. The framework adopted was Bigg’s (2003) constructive alignment system for quality learning and teaching. The system refers to the alignment of the curriculum, teaching methods, assessment procedures, climate and institutional climate (Biggs, 2003, p. 26; Biggs, 2001, p. 226). Climate has been modified to environment in this study to extend its meaning to not only reflect setting created by the teacher but the effect of the physical setting. In addition to this framework, the philosophy theme is included, as Biggs identifies that responses to the system are often coloured and influenced by an underlying philosophical position to learning and teaching. Bigg’s (2003) framework is the most appropriate framework for this study due to its prominence and high level of acceptance in higher education in Australia and the UK. It also uses a constructivist perspective that is consistent with most learning and teaching theories in use. Another benefit was that the number of themes in Bigg’s framework fitted the recommended 5–7 themes for writing a qualitative report with a sufficient level of detail (Creswell, 2005).

Table 3.9  Stage 1: An extract of the coding framework that includes open coding (Source: Microsoft Excel, 2011, for Mac)

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Open Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the studio? (RQ1 How is the term studio conceptualised?)</td>
<td>Physical Place</td>
<td>Physical student workspace/teaching space</td>
<td>Used for units other than design/type of learning and teaching not reliant on space/place definition/place and mode of teaching/place and teaching methods/collaborative learning/ small-group teaching/ modulisation/mimics practice/ integrated learning/design studio unit/design studio teaching and unit/the crit/interpersonal skills/team teaching</td>
</tr>
<tr>
<td>Teaching methods</td>
<td>Collaborative/peer learning (includes reference to studio culture)/the crit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum design</td>
<td>Assessment (product/process)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Two screenshots from the worksheets show how key text segments for each theme are organised (see Figure 3.5) and the overall analysis framework is shown in Figure 3.6. To protect the anonymity of respondents, both figures are partially clipped but still
allow the use of worksheet to be understood. Note that in Figure 3.5 the respondents are labelled at this time as a1, a2 and so on in these worksheets.

Table 3.10 over on page 84 shows the use of Biggs’s (2003) framework and how secondary and tertiary codes developed from the analysis of the primary coded text segments. In most instances, two to three stances or issues were identified at the secondary level, for example the environment is represented by the types of setting, issues related to timetabled tutorial settings and issues related to studio settings. Each of these sub-themes were further divided into three or more tertiary-level issues, for example, issues related to the studio setting include the themes: sufficient space, the necessity for studio facilities as understood by the university, the purpose of studio facilities and students’ level of engagement with studio facilities. In addition to Biggs’s themes the conceptualisation of the term studio is also included. This addresses the development of a response to RQ1 “How is the term studio conceptualised...?” as Biggs’s themes facilitate the responses to the factors influencing studio models (RQ2) and the implications flowing from having diversity in studio models (RQ3) but not the issues related to RQ1 which is an important inclusion as the studio concept and the use of the term studio appear to differ from the studio forms described. The relevance is that the variety of use and meaning makes the term studio more difficult for an outsider of the school to comprehend.

In addition to the analysis of the studio using Biggs’s (2003) framework, the results were visually represented by the means of a radar chart in Figure 3.7. The radar chart enhances the recognition of studio patterns amongst the schools (Fakis, Hilliam, Stoneley, & Townend, 2014, p. 140; Sandelowski, 2001). Another advantage in using a radar chart is that it permits multiple axes to display all the primary codes. Each axis can then display the school stance according to the primary code compared with the other schools.
Figure 3.6

Screen shot of the framework analysis worksheet used in Stage 2

<table>
<thead>
<tr>
<th>Teaching Method</th>
<th>Assessment</th>
<th>Environment</th>
<th>Institutional</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of a collaborative design is all about collaboration. Everything is set up for the students to work together from the first instant. So I suppose my approach or the staff's kind of prevails throughout and the activity is all about working that in a collaborative way. I mean starting with the design is a way of getting them into teams. We made very steep requirements - individual - and it's the kind of steepness that is the most - each individual is to be in the main unit and accumulate into a final result.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Design of the unit and student engagement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area of tutors/coaches</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tutorial (3hr) or session</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reflections on teaching</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st wk - spread dating and formation of groups - prescribed in ensuring the range of disciplines in teams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I got to say I did have some questions about what some of the projects they'd done. Just things like the things they'd have because certainly and they had their own methods and their teams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal journal process was misunderstood as it was not assessable - but a way to record personal experience to then use in the context of putting their individual report together</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Teamwork</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Group technique:</strong> try in their teams to generate ideas - cascading brainstorm &amp; focused moderation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tutors given talking points at different</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evening class</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8 hours unit - same thing being managed - worries who missed - leca</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 main task - collaborative design project - 45% individual report/reflecting 55% - formative milestones
Table 3.10 Stage 2: Primary, secondary and tertiary codes of studio forms (Source: Microsoft Excel, 2011, for Mac)

<table>
<thead>
<tr>
<th>Primary Codes</th>
<th>Secondary Codes</th>
<th>Tertiary Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Philosophical learning and teaching position</strong></td>
<td>Concepts of learning and teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Architectural practice and education</td>
<td></td>
</tr>
<tr>
<td><strong>Institutional climate</strong></td>
<td>Program level</td>
<td>Staff/student ratio (SSR) &amp; teaching contact hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Studio or classroom setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Design unit cross-subsidised</td>
</tr>
<tr>
<td></td>
<td>University level</td>
<td>Resource levels &amp; design-studio-based teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment policies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived priority of learning &amp; teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curriculum model</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workload allocation – research/teaching %</td>
</tr>
<tr>
<td><strong>Curriculum</strong></td>
<td>Structure</td>
<td>Compulsory/elective/own project</td>
</tr>
<tr>
<td></td>
<td>Syllabus</td>
<td>Learning outcomes</td>
</tr>
<tr>
<td><strong>Environment (setting/climate)</strong></td>
<td>Types of setting</td>
<td>Timetabled tutorial room/dedicated studio space/computer laboratories</td>
</tr>
<tr>
<td></td>
<td>Issues related to timetabled tutorial setting</td>
<td>Links between setting &amp; teaching delivery/purpose/limitations</td>
</tr>
<tr>
<td></td>
<td>Issues related to the studio setting</td>
<td>Sufficient studio settings/the necessity for studio facilities as understood by the university/purpose/student levels of engagement</td>
</tr>
<tr>
<td><strong>Teaching methods</strong></td>
<td>Lecture/tutorial approach</td>
<td>Management of tutors/tutor type/tutor induction/formalised exercises/exceptions</td>
</tr>
<tr>
<td></td>
<td>Studio approach</td>
<td>Design &amp; teach studio class/weekly internal crits – peer involvement/one-on-one/exceptions</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>Portfolio approach</td>
<td>One main assessment task – greater reliance on formative feedback/school moderation</td>
</tr>
<tr>
<td></td>
<td>Staged milestone approach</td>
<td>Multiple assessment tasks/types/process/role of assessment/unit-based moderation</td>
</tr>
<tr>
<td></td>
<td>Exception</td>
<td>Collaborative multi-discipline design unit</td>
</tr>
<tr>
<td><strong>Conceptualisation of the term studio</strong></td>
<td>Multiple meaning</td>
<td>Studio culture/inconsistencies to setting type</td>
</tr>
<tr>
<td></td>
<td>Singular meaning</td>
<td>Teaching method/holistic</td>
</tr>
</tbody>
</table>
Figure 3.7 An example of the radar chart used to compare school studio form

Note that in Figure 3.7 schools S1m and S2m are aligned and can be distinguished by the orange data points at the end of the yellow line. The distinction between these schools is clear when all responses are represented. To achieve a representation of school responses on a radar chart, it was necessary for responses to be assigned a numerical value. The way that “counting” or “quantitizing” is used for pattern recognition needs to ensure that the variations are not lost (Sandelowski, Voils, & Knafl, 2009, pp. 209–210). Furthermore, there needs to be a consistency between the readings of the school positions on the radar chart with the discussion of the themes and how judgments were made (Sandelowski et al., 2009, pp. 217, 234). Criticisms that are associated with the use of “counting” in qualitative research include its subjectivity and potential to smooth results out according to the researcher’s bias. The reliability and trustworthiness of “counting” are improved by having a second independent assessor to verify the judgments, however the limits of doctoral research resources prevented this action (Fakis, Hilliam, Stoneley, & Townend, 2014, p. 152; Oleinik, 2011, p. 861).

In this case the “counting” process and representing of the school responses were both tested with a scale of 1 to 5 and a scale of 1 to 3 to improve reliability. The scale of 1 to 3 was believed best to represent the variation in school responses because it allowed for the polar opposites to be conveyed at each end of the axis using the values 1 and 3 with the midpoint representing a blend or neutral position at 2. On the other hand, the use of the scale 1 to 5 presented too many alternatives and more questions about judgment and appropriateness (Figure 3.8), although there was not a significant difference in recognising the studio patterns despite the test of different scales. The justifications of the values assigned are described with the results in Chapter 4.
3.3 Rigour and trustworthiness

The level of rigour and trustworthiness in the data collection and analysis was critical as the mixed method approach used in this study was principally a qualitative-based inquiry. Evidence of rigour and trustworthiness was demonstrated by the researcher’s effort “to understand the situated nature of participants’ interpretations and meanings” (Ezzy, 2002, p. 81). It was understood that multiple interpretations or “truths” of data collected was likely (Rubin & Rubin, 2005), as there was no “final” or “correct” analysis. However, some were viewed more credible by the rigour demonstrated to ensure a fair representation of the original meaning was achieved (Woods, 1999, p. 56; see also Ezzy, 2002). By asking participants questions, not only were their perceptions and justifications personally constructed but also the researcher was interpreting in terms of the researcher’s theory (Oleinik, 2011). Therefore, it was crucial that during the data analysis and synthesis processes that the various studio responses were not eliminated or misrepresented. There was the potential for this to occur at many stages such as the development of themes, the use of the framework and the recognising of patterns. Hence, it was important that the synthesis of the studio data had come from an understanding of the combined differences. This had been achieved through: the presentation of “thick” descriptions of the academic voice and language in the results; confirmation of data interpretations by clarifying with the academics in subsequent interviews and invitation to make comments on the draft results; corroboration with literature findings; and triangulation of data. The quality of these processes and methods contributed to the study’s level of trustworthiness and rigour (Lewis & Ritchie, 2003, pp. 284–285).
Triangulation is a method used to improve the quality of the research (Creswell, 2005, p. 252) by drawing on multiple sources and forms of evidence, to promote more “rigour, breadth, complexity, richness, and depth to any inquiry” (Denzin & Lincoln, 2005, p. 5; Fakis et al., 2015; Oleinik, 2011). This study triangulated data by first understanding the studio landscape across Australasia and through the identification of broad trends in Stage 1. This permitted a more in-depth study to be conducted with a smaller and purposeful sample. The sample of six schools and 10 academics were determined to reflect the greatest levels of variation (Patton, 2002) between studio concept and its forms and the school context. The second triangulation method employed was the use of multiple research methods (interviews, documents, observations) in Stage 2 to understand the studio by examining a design unit that had been recently taught. The principal research method was the interviews, however documents (unit outlines and materials) and observation of studio facilities provided the backdrop to cross-reference and compare the interview data. All these approaches with which to triangulate data were consistent with the researcher being self-aware of his or her effect on the data collection and analysis and the need to self-reflect on practices (Rubin & Rubin, 2005, pp. 31–32). As Denzin (1997, p. 5) reminds the qualitative researcher:

Language and speech do not mirror experience: they create experience and in the process of creation constantly transform and defer that which is being described.

In this case the researcher’s potential bias or theory comes from their experiences of studying and working in architectural education as an academic. Over the 15 years of working the researcher has taught design at two different schools at the undergraduate level. In both these schools, design was taught using teaching spaces where the class was typically 80 to 100 students, and tutorial groups typically involved 18 to 20 students. In addition, their teaching and researching roles with learning-by-making units (similar to Design/build studios) have informed the researcher of a collaborative studio-like environment. In learning-by-making units the SSR is lower at 1:15 and students are engaged in designing the “live” project in an architectural workshop facility. The process involves a lot of experimenting and discussion amongst students to resolve the project brief and understand the designing and making processes. Finally, 13 schools have been visited in Australasia in the capacity of researcher for Ostwald & Williams (2008a & b) or for this dissertation or as a member of three national accreditation visits.
Based on these considerations of rigour and trustworthiness in the research design, data collection and analysis, clarifying process with the purposeful sample and description of limitations, it was possible to develop generalisations to the research questions. Generalisations are understood here to be working hypotheses or extrapolations (Cronbach, 1975) meaning that there was a likeliness of applicability even though conditions may be similar but not identical (Patton, 2002, p. 584). These will be improved or strengthened by further research. The main purpose of this research was to provide a:

'map’ of the range of views, experiences, outcomes or other phenomena under study and the factors and circumstances that shape and influence them, that can be inferred to the researched population (Lewis & Ritchie, 2003, p. 269).

3.4 Limitations

The main limitations that might be perceived in this study include the data collection period occurring late 2009 to early 2011 and the study’s relevance to schools of architecture in 2017. The data collection period represented a time when flexible delivery and blended learning was in its infancy in architectural education, although the issue of flexible delivery to teach design and the implications for accreditation are only being tested now. Only one Australian school of architecture, Curtin University, offers students a fully online undergraduate program through Open Universities Australia (OUA, 2015). During the time of collecting data (late 2009 to early 2011), wireless networks were extremely limited in universities and the availability of mobile tablet devices had only just begun. The time taken to complete this study was a consequence of part-time candidature, the expansion of the purposeful sample group and the responsibilities of a full-time academic position. So the findings reported in this dissertation “map” the diversity of six architectural studio models in Australasia from 2007 to 2011 to highlight the experiences and implications, as schools described the future of the studio at risk (Ostwald & Williams, 2008a, p. 147). It is seldom that research into the design studio in architectural education explores the factors influencing its use and form, even in 2017.

The other limitations centred on the secondary analysis of Ostwald & Williams’s (2007a & b) studio data in Stage 1 of the research design and the composition of the purposeful sample in terms of gender representation and the number of academics from New Zealand. The secondary analysis of Ostwald & Williams’s (2007a & b) studio data could be perceived as a limitation as it contains 55 selected excerpts from the
original transcripts on the studio, but it is unclear what was left out and why. However, all schools from Australasia were represented through the interviews with academic managers and staff focus groups. The only omissions detected in the excerpts were from three of the 16 staff focus groups held in Australia, but these schools were still represented by two separate interviews carried out with the Head of School and the Program Head. Therefore, it could be argued that the Ostwald & Williams's (2007a) data adequately represented overall trends towards the studio in 2007 in Australasia.

The composition of the purposeful sample involved 10 academics, comprised of six females and four males, making it representative of gender. However, this contrasts with the dominance of males across all three domains of practising professional architects, academic staff and the student population. For example, in Oceania there were approximately 76% male academics compared to 24% female academics in 2006 (Ostwald & Williams, 2008a, pp. 34, 37). The portion of females was slightly increased when the Papua New Guinea statistics were removed from Australia and New Zealand, as no female academics were identified. What this means in terms of the study was unclear, but it could be contended that the female perspective was over-represented in comparison to trends in academia, the profession and student body.

In relation to the perceived limitation of New Zealand academics in the representative sample being two out of the 10 members, this was proportionally lower than the two representatives from each Australian school. This meant that each New Zealand member represented one school, meaning two-thirds of New Zealand schools were represented but there was less opportunity to gauge difference in interpretations or representativeness of the data. It could be argued that both New Zealand academics were experienced teaching leaders within their schools and the findings were comparable with the base data from Stage 1. In Stage 1, the perspectives of New Zealand academics were represented by four senior academics and all academic focus groups from the three schools of architecture in the Ostwald and Williams (2007a) document.

### 3.5 Chapter summary

This chapter has described both the research design and the rationale underpinning the research design so as to capture a more in-depth understanding of the studio concept and its various forms from schools in Australasia. The study responds to the challenges faced by academic leaders in the higher education context to maintain
studio in its various forms during the period 2007 to 2011 and consider its future. To achieve this aim, four research questions (RQ1–4) were developed to understand how the studio was conceptualised (RQ1). This was followed by the factors that have led to the diversity in studio models (RQ2) and the implications that arise from having this diversity in studio models (RQ3). The final question explored what the focus on the studio revealed about architectural education and its conditions in Australasian universities (RQ4). The research problem and questions were framed and confirmed through the issues identified in the studio literature (Chapter 2).

The nature of the research questions to gain a more in-depth understanding of the studio, and the factors involved, was suitable for a mixed method approach (Creswell & Plano Clark, 2011). The approach principally involved a qualitative-based inquiry using semi-structured interviews, documents and observations embedded with quantitative data. A key constraint of this approach was that multiple perspectives and readings will exist but some were more credible due to the rigour and trustworthiness demonstrated to fairly represent participant views and make interpretations. It is from this basis that the research design and methods were informed and developed.

The emerging themes from the Stage 2 data analysis indicated that a recognised learning and teaching framework would be beneficial to manage and analyse the data, as they resembled this. Biggs's (2003) constructive alignment for learning and teaching in higher education was adopted as the framework to discuss the analysis. The approach was further enhanced by the representation of data using radar charts to recognise patterns and make comparisons. This “quantitizing” of the data may be considered subjective, but the reader will have the necessary access to the evidence and rationale to form their own position. A three-scale axis is used to represent schools’ polar opposite responses and a midpoint where there was a blend.

This chapter has described the mixed method approach, through its research design, methods used to collect data and analysis to ensure the rigour and trustworthiness of interpretations, as well as the limitations of the study. It has provided the necessary context to understand the reporting of the results in the following chapter.
4 Results

In the previous chapter the application of the mixed method (Creswell & Plano Clark, 2011) approach used in this study and how this methodology would answer the research questions (RQ1–4) was presented. The structure used to report the results follows the two-stage process for data collection and analysis and is shown in Figure 4.1. Stage 1 included a review of the Australasian data (Ostwald & Williams, 2007a & b) to identify overall studio trends and issues. This is achieved by discussing how the studio is conceptualised by schools according to the themes of physical place, teaching methods and curriculum. These results informed the selection of the purposeful sample in Stage 2 (section 3.2.4) and identified further lines of inquiry.

![Figure 4.1 Diagram of the structure of Chapter 4](image)

The main section of this chapter is the analysis of the Stage 2 data using Biggs's (2003) framework to identify the overarching themes. The analysis identified a number of issues that have influenced the diversity of studio models, while also exposing the different characteristics that make up the studio forms in schools. These findings are represented on a radar chart to compare the studio form in each school according to the themes from Biggs's (2003) framework and to assist in the development of studio
models. The section closes with an analysis of how academics understand and commonly use the term studio in their school. The chapter then concludes by drawing together the responses to the research questions (RQ1–4) that have been identified from Stage 1 and 2 and which inform the discussion in Chapter 5.

4.1 Stage 1: Australasian review

The results reported below represent the analysis of Ostwald and Williams’s (2007a) data which contained excerpts of studio descriptions from all Australasian schools in 2007, in addition to relevant school profile data (AIA, 2008b. The purpose was to begin the process of exploring the diversity of the studio concept and their forms in Australasia, the issues and influences informing these and their implications (RQ1–RQ3). The key themes that emerged from the analysis of Ostwald and Williams’s (2007a & b) data, shown in Table 4.1, are the studio concept and the issues impacting on the studio form. The results from the analysis follow.

4.1.1 Analysis of theme 1: the studio concept

The studio concept was identified as holding both singular and plural understandings of studio that included the secondary themes of physical place, teaching methods and/or the curriculum design. The physical place theme included responses to the studio as a physical place where the majority of students had regular access and ownership in order to carry out their learning. Responses that refer to the dominant use of classrooms, hot-desking or teaching places were excluded as the physical place theme recognised the more “traditional” understanding of the studio place (Ashton, 1997; Ostwald, 2015; Salama, 2015). The teaching methods theme represented how the studio was taught, including such means as lectures, tutorials, workshops, critiques and others. The final theme, the curriculum design, incorporated a broad range of issues about the design unit being studied, such as its place in the curriculum, the weighting of the unit and the class size and the staff/student ratio (SSR).

To identify the prevalence of school responses to the studio concept, these were mapped (see Table 4.2) according to the presence of the physical place, teaching methods and curriculum themes. Each school response can be identified by its location, academic position of the respondent and accessibility to studio facilities, which allowed for more detailed analysis and pattern recognition. Of the possible 57 respondents from each school (n=19), only 14 respondents were not found or there was inadequate information in Ostwald & Williams’s data (2007a) to form an assessment. This did not
compromise the value of the analysis as the majority of schools included two to three respondents’ answers. Of the 19 schools, there is only one that is represented by one respondent and this school is one of three schools in the same state capital in Australia. Thus, Table 4.2 acts as a guide to the diversity of the studio models conveyed in Ostwald and Williams’s data (2007a) as the interpretation of the excerpts are analysed solely by the researcher and later checked and tested against the results of Stage 2.

Table 4.1  Key themes from Ostwald and Williams’s data (2007a)

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
<th>Open Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: The studio concept</td>
<td>Physical place</td>
<td>Physical student workspace/teaching space</td>
<td>Used for units other than design/type of learning and teaching not reliant on space/place definition/place and mode of teaching/place and collaborative learning/small-group teaching/modulisation/ mimics practice/ integrated learning/design studio unit/design studio teaching/ the crit/interpersonal skills/team teaching/time-poor students</td>
</tr>
<tr>
<td></td>
<td>Integration of computer facilities/ accessibility to space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching methods</td>
<td>Collaborative/peer learning (includes reference to studio culture)/the crit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum design</td>
<td>Different curriculum structures/ restrictiveness on design syllabus</td>
<td></td>
</tr>
<tr>
<td>Theme 2: Issues impacting on the studio form</td>
<td>Student disengaged</td>
<td>Student part-time employment whilst studying/commuter campus</td>
<td>University management/time spent on administration/ subjectivity in assessment/ location in curriculum/contact hours/studio culture/student qualities/staff and student ratios/technology/demand for research/crowded curriculum/availability of sessional staff/contact hours/modularisation</td>
</tr>
<tr>
<td></td>
<td>Staff contact time reduced</td>
<td>University management/time on administration/ demand for research/ availability of sessional staff/contact hours/modularisation</td>
<td></td>
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<tr>
<td></td>
<td>Negative changes to curriculum structures</td>
<td>Rationalisation/ modulisation/crowded curriculum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduced studio facilities</td>
<td>Dedicated/hot-desking/ computer lab</td>
<td></td>
</tr>
</tbody>
</table>

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Table 4.2  Mapping academic concepts of the studio at their school

<table>
<thead>
<tr>
<th></th>
<th>Physical Place</th>
<th>Teaching Methods</th>
<th>Curriculum Design</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>44% (19 on 43)</td>
<td>81% (35 on 43)</td>
<td>47% (20 on 43)</td>
</tr>
<tr>
<td>Physical Place</td>
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<tr>
<td>NSW-AM</td>
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<td>NSW-AM</td>
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<tr>
<td>QLD-AM</td>
<td>QLD-St</td>
<td>REG-AM</td>
<td>REG-AM</td>
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<td>WA-AM</td>
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<td>REG-A</td>
<td>NZ-AM</td>
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<td>REG-St</td>
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<td>NZ-St</td>
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<tr>
<td>Teaching Methods</td>
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<td>NSW-St</td>
<td>QLD-AM</td>
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<td>SA-AM</td>
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<td>SA-St</td>
<td>REG-St</td>
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<td>VIC-AM</td>
<td>VIC-AM</td>
<td>REG-AM</td>
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<td>VIC-St</td>
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<td>WA-St</td>
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<td>Curriculum Design</td>
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<td>NSW-AM</td>
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Key:
NSW  New South Wales based school
NZ   New Zealand based school
QLD  Queensland based school
REG  Regional based or small school: Charles Darwin University, Deakin University, University of Canberra, University of Newcastle, University of Tasmania
SA   South Australian based school
VIC  Victorian based school
WA   Western Australian based school
AM   Academic manager (Head of School/Discipline & Course Coordinator) response
St   Staff focus group response
XXXX Physical studio spaces

The analysis of Table 4.2 is presented thematically in the following sections, according to Physical place (4.1.1.1), Teaching methods (4.1.1.2) and Curriculum design (4.1.1.3). To maintain the anonymity of schools in Stage 2, a few respondents in Stage 1 analysis (Table 4.2) have had their nomenclature changed to Stage 2 nomenclature. The intent is also to assist the reader in making the connections between the reporting of the Stage 1 results with the Stage 2 results by using the nomenclature of the purposeful sample. This clarifies why the nomenclature is mixed below.
4.1.1.1 Physical place theme

In Table 4.2, the respondents of the physical place theme (19 on 43, 44%) indicated that a recognisable divide existed between schools with regard to the accessibility of studio facilities and this had implications for how the studio was conceptualised and what teaching methods (section 4.1.1.2) were employed. The majority of these responses came from schools with studio facilities, indicating that this theme showed significant divergence among the schools regarding the spaces they had available in which to teach design. It is apparent from Table 4.2 that the responses that are identified with the physical place theme are more likely to have studio facilities in their schools, as shown by the yellow highlighted text. The quotes drawn from participant responses in the interviews and documented below, identify how the participants conveyed a “traditional” understanding of the studio as a place for students, as well as that the studio facilities needed to be freely accessible.

Studio is a dedicated space for the students with significant access (WA–AM).

What it means here is that the core of the school's activities and the core of its social life, is a series of spaces, room size spaces, generally can accommodate about between 15 and 25 people which students are encouraged to work in for long periods of time with virtually unrestricted access (T2s–AM).

From the analysis of the physical place responses, three secondary themes emerged that indicated the:

- accessibility to sufficient studio facilities in schools of architecture and, therefore, its prevalence in schools of architecture could be understood;
- association held by academics between studio facilities and peer learning; and
- pressure being experienced to maintain or increase studio facilities.

The first theme, namely the accessibility to sufficient studio facilities in schools of architecture and, therefore, its prevalence in schools of architecture, indicated that New Zealand schools were more likely to provide studio facilities than in Australia. To demonstrate the difference more clearly, the number of schools from Australia and New Zealand where sufficient studio facilities were reported for most of the student population are shown in the bar graph (Figure 4.2). Charles Darwin University is excluded from this analysis since the student numbers are disproportionately small and only the undergraduate program is offered.
Figure 4.2 Comparison of the number of Australian and New Zealand schools with principal access to studio facilities or teaching spaces (n=18)

The bar graph (Figure 4.2) indicates that of the 15 schools in Australia only five have access to studio facilities. The remaining 10 schools operate studio in timetabled teaching spaces. This may suggest that there are differences (or variability) existing between Australasian schools and their physical place for design learning and teaching. This raises the question: what causes this difference/variability? Therefore, the issues of the size of the student population in schools, their location and resources were investigated.

To understand if an association existed between the number of student enrolments and accessibility to space types, schools' enrolment data was accessed from the AIA's school profile data (AIA, 2008b. The lines on the graph (Figure 4.3) below illustrate the schools according to their location in Australia or New Zealand and their access to studio facilities or teaching spaces. The y-axis charts each school's student enrolments in 2007. It is apparent that the number of student enrolments does not strongly associate with the predominant access to studio facilities or teaching spaces. The schools with accessibility to studio facilities typically had fewer than 500 enrolments. This indicates that schools with over 600 enrolments no longer had access to studio facilities in this study and these schools were based in Australia. However, an association appeared to exist between school location and studio facilities in all New Zealand schools. In comparison, the schools with accessibility to studio facilities in Australia were more likely to be found in regional centres (n=3) compared to metropolitan areas (n=2). In Australia this graph (Figure 4.3) suggests that for the schools explored, for enrolments of 200–500 students, studios were equally likely to
have studio facilities or teaching spaces. If enrolments were over 500 it was more likely for studios to have teaching spaces as opposed to studio facilities.

Figure 4.3 Comparison of schools of architecture enrolments in 2007 according to space types (n=18)

A link between school resources and studio facilities appeared to be more problematic to draw as the data were incomplete and the analysis only gives an “impression” of the diversity because the data were generalised from the interview and focus group excerpts (Ostwald & Williams, 2007a). No other data sets were available with which to crosscheck except Ostwald & Williams (2008a), which draws from the same data set. Contact hours and SSRs were used to signify the school resources. Furthermore, contact hours may vary according to the semester or degree level, as evidenced by looking at the curriculum structure of schools (AIA, 2008b). What could be established from the examples collected were that the range of typical contact hours extends from four to 12 hours per week and the SSR range was 1:15 to 1:25. In addition, New Zealand schools were in nearly all instances better resourced with regard to contact hours and SSRs than in Australia.

The second theme, namely the association held by academics between studio facilities and peer learning, was reported by many of the physical place respondents. Within the theme, responses indicated the importance of the studio facilities to assist peer learning, despite the student engagement problem and the disruption of computers. Respondents anticipated that access to studio facilities provided enhanced peer-learning opportunities. The studio facilities were identified as important for the development of a culture to support peer learning of design. However, the development
of studio culture was also identified as an important theme by respondents using
timetabled teaching spaces, as described in 4.1.1.2 Teaching methods. The quotes
below illustrate the perceived importance attributed to studio facilities and their
perceived role in the facilitation of peer learning, including the difficulties experienced
by some schools to retain the specialty nature of the studio facilities.

*It’s two things for me. It’s the best facilities we can supply which I’ve had to argue for and work hard to get and it’s a place for collegiate learning. In fact it should be in more areas than design units* (REG–AM).

*It’s not just an idea. It has to be a physical place. It has to be a place where students and staff interact in meaningful ways where ideas are the basis of a discussion and where there’s a high level of mutual support amongst the students and between the students and staff* (S3s–AM).

It appeared that tension also existed between the studio facilities and peer learning
needs, as student engagement in the space was required. One response indicated "it’s
mainly empty again" (NSW–AM) which to some extent challenges the premise of peer
learning being reliant on facilitation by access to studio facilities. The low level of
student engagement with studio facilities indicated that the concept of the space drawn
by staff as being necessary to support student interaction or student peer learning was
questionable. Staff did not recount that task design and task sharing would also support
the level of student engagement. Another response indicated a cultural change had
occurred with students in relation to studio engagement, as the norm of working
almost full-time in studio facilities was rarely evidenced. This is illustrated in the quote
below, that students work from home instead of utilising studio spaces unless
academics attract them with innovation.

*Thirty years ago the education was studio based. In these types of studio you were expected to be there all day and have a review in the afternoon. Now there is not the expectation by students that they come and do work within the classes. You have to come up with innovation to get them to come in. They are set up at home* (REG–St).

Despite the tensions reported above, for two of the five Australian schools with a low
level of student engagement with studio facilities, studio remained highly valued by
some schools, and more generally within architectural education (section 2.1). For
example a number of Australian respondents (SA–St, REG–St, NSW–St) told of attempts
to maintain some connection to studio facilities to encourage an increase in students
interaction and learning. The attempts included two schools (SA–St and REG–St)
confining studio facilities for a year level to provide an opportunity to encourage the
development of studio culture. Another school (NSW–St) attempted to achieve a studio culture through the creation of a “hybrid” flexible studio that was fully hot-desked and timetabled for different design classes during the week. Each year level took a turn in the facility during the week. The facility included a number of interlocking spaces with wall panels for pin-up and discussion. It could also be configured with a number of mobile tables for a working session, teamwork or model making. Personal storage was also provided within the facility for personal work and equipment (NSW–St). The following example articulates a respondent’s (NSW–AM) experience of observing an active studio culture at a New Zealand school (S1m) on a Friday evening, despite there being no immediate assignment due. This statement was in response to the respondent questioning why students were disengaged with access to their studio facilities, since this was not the case in New Zealand. For this respondent the studio facilities were comparable, yet students engaged with the studio facilities in the New Zealand school and not in the Australian school. The tensions reported above and below indicate an inconsistent association between types of physical place and levels of student engagement. Concerns about student levels of engagement with studio facilities were unable to be supported by research observations because the majority of school visits were organised during the break between teaching semesters.

The role and type of physical place is also being disrupted by student ownership of and access to computer laptops and home computers. Many schools reported new technological demands being placed on space requirements, whether they were traditional studio facilities or teaching spaces, as indicated in the quotes below.

*The higher access to laptops is changing the role of the studio and the activities, therefore space requirements are changing. No virtuality aspects to studio. Place where data-rich modules can be presented. Smart boards and access to that technology has a potential to change studio sessions, online presentations have potential (WA–St).*

*IT on studio – has caused some security issues. Part of the energy of the studio is open access and the cost of refurbishing and air-conditioning the studio has meant we close the studio. The doors are now locked. We had flows of people in and out and now we have electronic cards. The culture of the school has been affected by it. Opportunity to remove box screens and for students to bring their own laptops. Moving to low infrastructure but it is a long way to go (S1m–St).*

*Difficult to black out (present digitally) and acoustics and hot-desking – no security for pin-up (has to be taken down). Design of studios/building (1:15) spaces are configured for 30 students. Not enough equipment, i.e. projectors, to present design work (students bring in laptop to discuss and show the work) (NSW–St).*
In some instances (SA–St, NSW–AM, REG) the lack of student engagement in physical studio facilities and teaching spaces was attributed to students’ ownership of laptops and the use of the computer laboratory instead, to the extent that the computer lab was viewed as an important physical studio space:

*The computer lab is an important working studio in the school. Future must recognise the computer lab as an important studio space (REG–St).*

At the time of data collection in 2007, the computer laboratories (QLD, T1s, T3l, S1m, S2m, NSW, REG, VIC) were in separate spaces to the studio facilities and teaching spaces, or even centralised in a common university laboratory (T2s). However, one school (QLD) conveyed a different perspective, in that technology was enviable but unlikely to disrupt the studio concept including physical studio facilities and teaching methods, as it was seen as a tool.

*technology is a part of it and will be there – everyone will own a laptop it will not “change” design studio (QLD–St).*

The third and final theme concerns the pressure experienced by schools to maintain or increase studio facilities. The pressures included the significant increase in enrolments, limitations of existing buildings, “claw-back” of spaces, hot-desking and studio facilities being “tolerated” but not supported in their budget allocation from the faculty or university management (S1m –AM). The following quotes demonstrate the pressure from the expansion of enrolments, with the first quote indicating that enrolments had doubled from the levels the building was originally designed to accommodate. It also describes how some spaces were being taken back by the university in response to overall expansion of the number of students studying at the university. Schools were responding to the lack of space by trying to use it differently, by making these places flexible and centrally bookable. Some school responses were to turn a small proportion of existing studio facilities into hot-desks (sharing) to expand the number of studio facilities. In the second quote, the studio place was described as fundamental to their approach, but their reference to Jurassic Park reveals that it was endangered.

*Pressures on studio – the university rents out space to the schools. From time to time the university works department have come in and said we could use this floor space to form a great school of ... Other pressure is that not every student has their space. We are using a hot-desk set-up. The school was designed in ... for 200 students. Presently the studio population is twice that. Pressure not on lecture room which are in a pool but there is a pressure on studios and workshops (S1m–St).*
... a bit of the Jurassic Park we want to hold on, [to] the studio ... base zero for our people to operate, biggest problem is over-enrolment (QLD-St).

Rarely did schools indicate a planned expansion or upgrade of studio facilities. Of the eight schools where there was sufficient access to studio facilities for the majority of the student population, only two indicated facilities were being expanded to accommodate increasing student enrolments.

The reference made above to “claw-back” of spaces refers to universities taking back spaces that were previously controlled and effectively owned by the schools for their learning and teaching activities. Many schools across Australia and one New Zealand school indicated such a trend within their university, that is to make school-controlled spaces more flexible and centrally bookable by the entire university. Problems were described with these spaces, including furniture arrangements regularly being changed to suit different deliveries, and mess being left by previous occupants. These problems had to be remedied by the next class and this took valuable time.

In our school there’s been a claw-back of what used to be the studio space into general teaching space, which is bookable by anybody, which has led to a real ambiguity about whether these spaces are studio or not and struggle over the use of them. Where it might be a studio in the morning, it might be a seminar in the afternoon. Then design students are given access after hours to come in and they make models and leave a mess and everyone wonders why that’s not cleaned for the seminar the following morning (VIC-AM).

In summary, responses identified in the physical place theme indicated that:

- studio represented a dedicated space with sufficient access for students to work in. There was a significant divergence between Australasian schools and their access to studio facilities in the 2007 data. It was more likely for a New Zealand school to have access to studio facilities than in Australia where only five schools had such access. It appeared that once school enrolments were greater than 500 students, only timetabled teaching spaces were provided;
- studio facilities were equated to greater peer learning – the development of studio culture, however problems with low student engagement made claims questionable. Advancements in technology meant students had increased freedom to work from home;
- pressure from their university was experienced by the majority of schools to maintain or increase school dedicated spaces, such as studio facilities. This was
to accommodate the overall growth in student enrolments being experienced by the entire university

Overall these trends above are consistent with the findings from the literature in Australasia (and the UK) (Zehner et al., 2009; AIA, 2009; Ostwald & Williams, 2008a; Vowles et al., 2012; McClean, 2008; Leon, 2004; Duggan, 2004; Potts, 2000). A number of trends are contributing to the divergence between Australasian schools of architecture and their studio model. It is unresolved as to what implications or interactions these trends may have on the themes of teaching methods (section 4.1.1.2) or curriculum design (section 4.1.1.3).

4.1.1.2 Teaching methods theme
The teaching methods theme in Table 4.2 encompassed the majority of respondents (35 of 43, 81%) and, therefore, schools commonly linked teaching methods with the studio concept, irrespective of school access to or absence of studio facilities. The teaching methods’ responses include the central role of the project-based approach that may include lectures, tutorials, workshops and critiques amongst others. They also reference the important role that collaborative or peer learning contributes to the development of student learning. Secondary themes identified from teaching methods respondents were:

- to qualify the type of learning and teaching spaces available;
- resource implications on teaching methods; and
- teaching methods employed.

The first theme, namely to qualify the type of learning and teaching spaces available, was typically first described rather than the teaching methods. The two quotes below are examples of this where the learning and teaching spaces are explained to be a classroom space and not a dedicated space for students, contextualising their studio concept. Both quotes illustrate that the studio concepts in their school are the teaching methods and the climate formed between teachers and students using project-based learning.

*Not a place. It is a site for learning. They are classrooms not an individual place with ownership. The studio is an intellectual rather than a physical place (SA-AM).*

It was also informative that spatial references such as “site for learning” and “learning environment” were employed to describe the learning and teaching space, even though these did not represent the “usual” studio space. The trend to describe the learning and teaching space first was also indicative of responses that fitted into the physical place theme of the traditional studio space followed by the teaching methods theme. As stated, the majority of the studio responses corresponded with the teaching methods theme, for both schools with access to studio facilities or teaching spaces.

The majority of responses identified the second theme, namely resource implications on teaching methods. However, few respondents indicated that their teaching methods had changed as a result of reduced resources. This was an unexpected result as academics in Australasia had previously indicated that the studio concept was most under threat in architectural education (Ostwald & Williams, 2008a, p. 147; Ostwald & Williams, 2008b, p. 34). A few responses indicated that academics were resisting the pressures and maintaining existing teaching practices, despite the reduction of resources and the increase in student enrolments, by teaching over the “paid” time. The quote below indicates that overtime is not sanctioned or “paid” by the regional school or the university, but a condition of an academic believing more tutelage time is required to ensure student learning. The academic was attempting to maintain the individual crit with each student. This was also evident in the second quote, which was from another school (T3l), where academics changed their teaching times according to the weekly demands of the class. However, in this instance the academic explained that there were no workload pressures being experienced so it was manageable. The expression “we’re lucky” confirms that this is not typical for other schools in Australia.

Unofficially we do give more time. Definitely need more than six hours. ... Six hours 15–20 students per week would be heaven. Rarely have students of less than 40 but have a high level of pastoral care. 2 x 2-hour sessions are more effective than 1 x 4-hour session (REG–St).

... we go over and under [time] depending on what the time is during the semester et cetera, and because we've only got fifteen students, it's just not an issue for us. I mean again, we're very lucky in that respect – no pressure on us (T3l–AM).

The minority of respondents indicated that changes to their teaching methods were in response to the types of physical spaces and their accessibility, increased class sizes
and/or diminished contact hours. These are unpacked below to better understand the considerations occurring when teaching methods change.

Changes to teaching methods deployed in schools T1m and T2s were intended to motivate student engagement over a short period of time through an explicit event, exercises and/or workshop. The concerns were:

- lack of studio facilities impeded opportunities for peer learning outside of contact hours; and
- increased tutorial size of 20 students over a short period of time (2–3 contact hours) meant that one-on-one tutelage was no longer effective. Students leaving “after their turn”, meaning there was less potential for peer interaction where they could discuss and learn.

The quote below demonstrates the response:

*culture again – 1 to 17 not bad … listen to crit or peers they can learn from this – now here they disappear after their turn – we have lost learning from peers – now to keep them here we organise activities or task for the hour – I miss the learning from peers (T1m–St).*

So the objective of the event, exercise and/or workshop was to facilitate an immersive and dynamic experience to draw students together to work and discuss, as a way to engage them in their learning (T1m). By incorporating an event or workshop, the delivery changed from the individual to the group and required more active participation by students in their learning. As justified in the quote below, “group work” provided a reason for students to engage in studio workshops.

*As soon as you’ve got group work, you’ve got a reason for them to be there. … I run workshops, studio workshops. Those typically have a specific agenda. It’s studio work in groups. There is a product at the end of that session…. A group product, which is reviewed the same day at the end of the session. So that runs all day or all afternoon and there’s something to show at the end of it (T2s–AM).*

The workshops were referred to as “studio” workshops in the quote above. The concept of the workshop described above is one that facilitates an interactive learning session and not the workshop facility that provides access to machines for making. The academics that were incorporating workshops or events repeated that students were more engaged than before which potentially made the teaching more effective. There were still some reservations expressed, indicating that further development is required with workshops and events (T1m–St). Overall, academic staff agreed that this change in
delivery required more preparatory time to conceive and provide explicit instruction to both students and tutors (T1m and T2s-St). It was also critical that tutors’ skills were more developed in order to engage a group of students meaningfully in learning with reduced time. Both schools (T1m & T2s) belonged to an Australian context.

In contrast to these circumstances above, a respondent from an adequately resourced school (S2m-AM), in terms of both studio facilities and staffing, thought that adequate resources had confined the development of their teaching methods to past methods. In the quote below, the academic manager’s main concern was that the established practice of one-on-one tutelage took precedence over any other potential delivery methods. They also thought that their colleagues gained teaching satisfaction from all-day round individual tutorials, despite its potential to induce exhaustion and repetitive instruction. The reference to “the same didactic lecture over and over” related to their thoughts that the one-on-one tutorial is teacher centric and, as it is being repeated to many students individually, that it is considered to be the same as a lecture delivery except that it is most ineffective.

What I see happening is that rather than encourage alternate forms of education that is the studio might be a space where all sorts of flexible or informal arrangements might occur, small-group learning, student-based delivery, peer-to-peer teaching. What I see is that tutors follow students around repeating the same didactic lecture over and over and over. Then they sit down six hours later and say I’m really exhausted as though they’ve done a good days work (S2m-AM).

The quote implied that the respondent was questioning a “traditional” studio teaching approach and its continued use. These perspectives are not evident in the staff focus group response. School S2m was situated in New Zealand. These three examples of resource implications on teaching methods is further evidence that supports the differences between the studio concept and its forms in Australia and New Zealand.

In summary, nearly all respondents (81%) identified aspects of teaching methods when discussing the studio concept, irrespective of the type of learning and teaching spaces, resourcing levels or their location in Australasia. Responses typically qualified the type of spaces available before describing the teaching methods deployed. Concerns were conveyed about the reduction in resourcing impacting on teaching methods, but only a small minority explicitly articulated a change in teaching methods. This suggests that the majority of the schools were attempting to maintain existing practices, which may be generating pressure. Only one respondent in Stage 1 data, an academic manager.
(S2m–AM), reported that adequate resourcing and facilities was preventing their school from exploring alternative teaching methods.

4.1.1.3 Curriculum design theme

The final theme of curriculum design was identified in 20 of the 43 responses (47%) in relation to the question about studio concept and form in their schools. This was a comparable number to the physical place theme, the difference being that the breadth of issues within the curriculum design theme may signify evidence of the studio model diverging. The majority of respondents understood the curriculum design theme to be related to design learning and teaching and the structure of the design subject area in school curricula. The secondary themes identified differences in how the design subject area:

- was structured in school curricula (i.e. proportion of design subject area, unit weighting, compulsory or elective based, integration of building technology requirements, modularisation);
- may offer flexibility in the design syllabus in term of project vehicle and learning activities employed.

Respondents, in explaining their studio concept and its form, often reported the proportion of the design subject area and/or the structure of design units in their curriculum. Responses were inconsistent about the proportion of the design subject area in their school curriculum. The quote below demonstrates how a respondent was critical of the dominant proportion that studio/design subject area held in the curriculum. The respondent also reported that their perspective, on the design subject area being too dominant in the curriculum, was counter to student perspectives.

*The studio dominates far too much. Absolutely absurd. The students said there should be more points allocated to design because that is where they spend the majority of their time (S2m–St).*

The S2m curriculum structure alternated each semester in the weighting of the design subject area, from a double to a single weighting, which meant that the design subject area dominated any other subject area.

The response below conveys an alternate curriculum structure where the design unit was an open or elective choice among the year levels. In the alternate semester the design unit was compulsory to the year level and integrated with the requirements of architectural construction and science.
The reference to “it’s vertically integrated” related to open/elective choice being made across multiple year levels. Each “open studio” was designed to teach students together on one project but then students were assessed according to year level outcomes.

In addition to the various examples of curriculum structures above, was the consolidation of design units due to the process of modularisation. Design units were being consolidated at school T1m due to overall university requirements that all units needed to be one single-weighted unit and equally resourced. An example of this was the halving of the contact hours for the design unit from two four-hour sessions a week to one four-hour session (T1m–St). Taking all these different examples of curriculum structures into account, Ostwald and Williams's (2008a) work identified that the percentage of design units in pre-professional programs (all five years) ranged from 28% to 54% (p. 131) in 2006. As indicated previously, Charles Darwin University has been excluded from this comparison as it only provided a three-year undergraduate degree.

The final theme and example, below, is indicative of design units where it appeared that the design syllabus was relatively unrestrictive and left to the academic or practitioner leading it to determine.

It varies from year to year, and also depending on who’s leading it (T2s–AM).

In the case of school T2s the design unit description remained fixed but the learning outcomes, learning activities and assessment methods may be changed depending on the academic teaching the unit.

Overall, the secondary themes of curriculum structure (proportion of the design subject area, unit weighting, open/elective choice and compulsory units, and modularisation) and the level of restrictiveness to change the design syllabus demonstrated that there was no one model set in place but rather flexibility existed in the curriculum structures amongst schools. This was evident when cross-checking with the school profile data (AIA, 2008b). The differences in the proportion of design subject area in the entire curriculum indicated another issue influencing the diversity in studio models. It is not known if the proportion of design subject area in the curriculum is an
indicator of school conditions or philosophical approach. This is explored in the purposeful sample results (section 4.2).

4.1.2 Analysis of theme 2: issues impacting on the studio form

Further to the analysis of the Ostwald and Williams (2007a) data that contained excerpts of academic respondents from every school about their studio concept, the excerpts also contained theme 2: issues impacting on the studio form, as shown in Table 4.1 (p. 92). The issues impacting on the studio form included:

- students disengaged,
- staff contact-time reduced,
- negative changes to curriculum structures, and
- reduced studio facilities.

The issue of students disengaged was divided in Australian schools, whereas no problems were reported in New Zealand schools. In Australia nearly half of the schools (seven out of 16) identified challenges being faced to engage students to attend and participate in the design class or studio facilities. The majority of these seven schools offered dedicated studio facilities, where students were provided with a desk to "own" which was in contrast with respondents from the New Zealand schools, who did not raise this matter but had access to studio facilities, which gives the impression that student engagement was not a problem for academics. The lack of attendance by some Australian students was related by respondents to students' prioritising their time spent on campus due to the length of their commute. For example, the "commuter campus" phenomenon (NSW–AM) is where students are more strategic with their attendance due to commuting time taking up to two hours one way. Another reason for the perceived lack of student attendance was due to part-time employment. The quote below indicates how academics had experienced resistance in engaging students and gained the impression that students expected to pass because they were paying for their education.

_Students are now buying education and education is a commodity. They are buying a pass. A result. A notion that it's about individual development has disappeared. Students say, 'you're wasting my money' (REG–St)._ 

The following quote provides another example of how student disengagement was prompting academics to reconsider their teaching methods in order to engage a different type of student than the ones from the teacher's memory of being a student.
Thirty years ago the education was studio based. In these types of studio you would be expected to be there all day and have had a review in the afternoon. Now there is [sic] not the expectations by students that they come and do work within the classes. You have to come up with innovation to get them to come in. They are set up at home (Reg–St).

The lack of student engagement, particularly evidenced in the Australian context, was also reported as having implications for the use of studio facilities. As stated earlier, the opinion that the “studio is empty again” (NSW–AM) caused concern due to a shortage of space for the university due to the expansion of student enrolments. Academics explained that students were more likely to occupy the studio facilities if they thought that staff might drop by to provide additional advice or to see who was committed to their studies. The quote below suggest that this, however, is old-model thinking because full-time academics are now less able to contribute additional hours to the studio due to new performance-level demands on research outputs, which requires new strategies.

*Staff dropping in and out is the old model. A strategy so that students realise they must be there for a certain amount of time (NSW–St).*

This leads into the second issue identified as impacting on the studio form in Australasia, namely the staff contact time for students being reduced both during and outside of design class time. The issue encompasses the:

- time pressures experienced by academics to balance research and administration with teaching responsibilities. The impediment is most commonly expressed as the need to enhance research outputs.

*So in the days when studio culture really worked, tutors used to wander around several times a day and talk to students. On the other hand they didn’t engage in the kind of research that academics are expected to engage in now. There was far less administrative overload (SA–AM).*

*Six contact hours would be nice but we can’t afford it. In terms of teaching good but in terms of workload and expectations on research it is getting tough to maintain (VIC–St).*

- increased demands for quality assurance reporting.

*Australia seems to be documentising focussed (WA–St).*

*I’ve got a whole heap of emails in here about I’m supposed to be re-writing course descriptions this weekend as well to try and sort of, to try and define descriptions, resources and so on. Just you know I’m not looking forward to (NSW–AM).*
fewer resources for teaching and units of study meaning fewer sessional staff hours, increased SSRs and potentially more responsibilities for full-time academics. The majority of the Australian schools reported fewer resources than had existed previously.

*Pressure on studios is financially driven (REG–St).*

*Three competing interests. A pressure on academic time, the pressure associated with funding high levels of student contact and the pressure on students to spend as little time at university as they can (VIC–St).*

*The studio units are becoming internalised [due to fewer resources] and not linking with any other aspects, they have become an entity within themselves... Historically the studio was more fluid, the disconnect happened when the university changes the funding formula (WA–St).*

*Not obvious outside architecture school to the university, [misunderstood] the need for one-on-one student/studio teaching (SA–St).*

An implication of staff contact time being reduced for both in and outside design class time, as reported by academics, was the threat to the use of existing teaching methods as they were becoming less viable due to fewer resources.

The third issue impacting on the studio form was the negative changes to curriculum structures due to changes or renewal of the curriculum structures in the universities in response to less government funding. References made to this trend included the:

*“modulisation” of units' weighting in the curriculum.*

*So studio is a distinct subject, technology is a distinct subject... so in the BA [undergraduate degree] the studio is one quarter of a student’s full-time load. In the masters it will be half so the studios are doubling (NSW–AM).*

*There is a concern at the way that the studio dominates the curriculum [despite equivalence to other courses]: students treat other courses with far less respect and commitment. There is a concern that this overflows to the staff who see the other courses just providing the resources to sustain the studio (WA–AM).*

*“rationalisation” of discipline-specific units.*

*The pressure is on for the integration of areas such as fine art, design and landscape architecture, there is starting to be an appreciation of what these areas offer for studios (WA–St).*
The reference made above to the “modulisation” of units impacting on the studio form was referring to a few universities instigating a standard curriculum structure, where each unit offered in the university is equal in weighting and size. The effect of modulisation on the studio form has seen a reduction in design unit weighting and size. Furthermore, the majority of schools have experienced an overall reduction in contact hours and this was occurring within a context where the curriculum was seen as already “crowded”. The “crowded” curriculum in Australasia was a result of the addition of generic graduate attributes or required learning outcomes and skills while at the same time removing nothing from the curriculum. This increased the amount of time required for generic graduate attributes or required learning outcomes and skills to be taught, however it led to reduced time for learning and teaching. The “crowded” curriculum also refers to the rationalisation of discipline-specific units so that a greater number of allied discipline units can be service taught. Thus, units that were taught previously only in architecture design may now be also taught as a more general design unit, including those in other design-based disciplines, such as to interior and landscape architecture students. The aim is to achieve an overall economy through large-scale teaching. The adoption of the “American” model in Australia, most notably by the University of Melbourne and University of Western Australia, have determined that an introductory design unit is open to any student studying at the university. The unit is taken as a “breadth” unit that serves to ensure that undergraduate degrees are not narrowly focussed. The implications of the “crowded” curriculum are that there is less room for an existing curriculum that responds to professional accreditation requirements, which inevitably means less time spent on knowledge and the application of knowledge in architecture.

The fourth and final issue impacting on the studio form was the reduced studio facilities. Reduced studio facilities was reported as impacting on schools differently due to the number of spaces allowed for dedicated desks for students to own or hot-desking, and if there were sufficient facilities for the entire program or a specific year level.

[the] space thing is quite important to how we might organise the curriculum in a very kind of space-poor university and where all other booking is centralised across the entire university (NSW–AM).

The space is usually multi-use. We do crits in the space also. Appropriate furniture and equipment. Although we are moving to digital we should have appropriate facilities including empty, open space. Ideally a desk per student. Space is too tight. Studio space is understandably [tight] because it is expensive. (NZ–St).
In third and fourth year there are dedicated studio spaces but not individual spaces... The venue is now the computer suites where they are bound to a place because they need the physical computer to be there (SA–St).

More than space. It is the energy that is generated that is the most important (REG–St).

Across the schools, many reported a reduction in studio facilities that provided a dedicated space in which students could work and collaborate. Some academics reported that computer laboratories were providing a similar active space outside of class time and developing a culture, similar to expected engagement with “traditional” studio facilities. Academics often qualified the studio form in their school in relation to the access to or absence of their type of studio facilities as this would assist in contextualising the teaching approach and culture of the school.

In summary, the responses reveal that a variety of issues are impacting on the studio form, as shown in Table 4.3.

Table 4.3  Key findings from analysis of Theme 2: Issues impacting on studio form

<table>
<thead>
<tr>
<th>Issues</th>
<th>Key finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>students disengaged</td>
<td>• seven Australian schools with adequate access to studio facilities identified student engagement issues</td>
</tr>
<tr>
<td>staff contact time reduced</td>
<td>• academics had fewer resources for teaching and increased workload demands for research outputs</td>
</tr>
<tr>
<td>negative changes to curriculum structures</td>
<td>• a reduction of discipline-specific design units and time</td>
</tr>
<tr>
<td>reduced studio facilities</td>
<td>• attempts are being made to maintain some type of studio facilities even if it is restricted to one year level, hot-desking arrangements, as well as the computer lab becoming the new space for students to spend a lot of time together</td>
</tr>
</tbody>
</table>

These findings signify issues impacting on the studio form and, therefore, contributing to a diversity of studio models in Australasia.

4.1.3 Summary of the results from the Australasian data

The process of resolving the research questions (RQ1–RQ2) has started with the secondary analysis of Australasian data (Ostwald & Williams, 2007a & b; AIA, 2008b) on the studio:
RQ1: How is the term studio conceptualised within architectural education in the Australasian context?

RQ2: What are the factors that have led to the diversity of studio models in Australasia?

The data contained responses from academic managers (Head of School/Discipline Heads) and full-time academic staff focus groups from each accredited school in 2007 (Appendix 3.1). Multiple themes (n=9) emerged about the studio concept (RQ1) and its forms in schools, including about physical place, teaching methods and curriculum design. The most reported studio was about teaching methods (35 of 43, 81%) whereas the responses to the other themes of the curriculum design (20 of 43, 47%) and physical place (19 of 43, 44%) were less (Table 4.4). Respondents typically reported two of the three themes about the studio concept and its form as shown in Figure 4.4. This highlights the dominant association of teaching methods theme with the studio concept. It also illustrates the smaller proportion of schools reporting the physical place theme and accessibility to studio facilities.

Figure 4.4 Stage 1: Reported studio concept typically identified two of three themes (teaching methods, curriculum design and physical place)

Through the process of unpacking Theme 1: The studio concept (Table 4.4) and Theme 2: Issues impacting on studio forms (Table 4.3) a number of significant issues were identified as influencing a diversity of studio models. What emerged from Stage 1 results is that the distinctiveness or character of the architectural discipline is possibly being eroded due to issues such as the standardising of unit size and weight and universities “clawing-back” school-controlled or “owned” spaces. The consequences of these issues for the studio were the reduction of specialist design teaching for a more
generic start to the curriculum and the increased use of flexible teaching spaces that are often disrupted in terms of furniture arrangement and mess from previous tutorial activities. Resourcing of schools also ranged in terms of contact hours from four to 12 and SSRs of 1:15 to 1:25. Concerns were expressed about low student engagement and its repercussions for peer learning. The veracity and implications of these issues are explored in Stage 2 (section 4.2) in order to answer RQ3, “What are the implications from having such diversity in studio models?”

Table 4.4  Issues identified from Theme 1: The studio concept under teaching methods, curriculum, and physical place

<table>
<thead>
<tr>
<th>Teaching Methods</th>
<th>Curriculum design</th>
<th>Physical Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>(35 of 43, 81%)</td>
<td>(20 of 43, 47%)</td>
<td>(19 of 43, 44%)</td>
</tr>
</tbody>
</table>

- qualified the type of spaces available before describing teaching methods
- various curriculum structures influenced by proportion of the design subject area, unit weighting, elective or compulsory units and modulisation
- a dedicated space with sufficient access for students to work in
- differences ranged in contact hours from four to 12 and SSRs of 1:15 to 1:25 (discussed earlier as a part of 4.1.1.1 Physical place theme but relates to differences in curriculum structures)
- studio facilities equated to greater peer learning, questionable due to low student engagement & advancements in technology allowing freedom to work from home
- reduced resourcing impacting teaching methods, however few articulated changes being made which suggests majority are attempting to maintain existing practices. E.g. teaching over “paid” time
- various teaching methods employed and related to contact time and SSR: one-on-one tutelage, crits, event/exercise/workshop (immersive & dynamic)
- level of restrictiveness to change the design syllabus, less reported in some schools and more dependent on who teaches it
- majority experienced pressure to maintain or increase school dedicated spaces due to overall university growth in student enrolments
- more likely to find studio facilities in New Zealand schools, and nearly a third in Australian schools
- reduced resourcing impacting teaching methods, however few articulated changes being made which suggests majority are attempting to maintain existing practices. E.g. teaching over “paid” time
- various teaching methods employed and related to contact time and SSR: one-on-one tutelage, crits, event/exercise/workshop (immersive & dynamic)
- level of restrictiveness to change the design syllabus, less reported in some schools and more dependent on who teaches it
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- level of restrictiveness to change the design syllabus, less reported in some schools and more dependent on who teaches it
- majority experienced pressure to maintain or increase school dedicated spaces due to overall university growth in student enrolments
To achieve a more complete understanding of the research questions (RQ1–RQ4) and the responses from Stage 1 (AIA, 2008b; Ostwald & Williams, 2007a & b) a purposeful sample group was determined in order to collect Stage 2 data. The group included three schools with accessibility to studio facilities and three schools utilising teaching spaces. These issues and the others raised in the summary were used to identify the schools in the sample group, as well as ensuring a divergence of schools through various locations, enrolment numbers and university-affiliated networks (see section 3.2.4).

4.2 Stage 2: Purposeful sample

There are many identified trends and issues from Stage 1 (Tables 4.3 & 4.4) that require resolution through more in-depth responses to the four research questions (RQ1–4). In the following section the results of the purposeful sample group of six schools and 10 academics are analysed according to their studio concept and form. The data collection involved two individual interviews with each academic on a recent design unit taught, review of related documents to the unit and assessment and targeted observations of the physical places utilised in the learning and teaching process. This provided a method to understand the studio models present in schools, as participants were either a Program Head or held a senior leadership role in design teaching at their schools. Stage 1 data (section 4.1) were also considered.

The results are organised according to the framework adapted from Biggs (2003) which focuses on Philosophical Position to Learning and Teaching, Institutional Climate, Curriculum, Environment, Teaching Methods and Assessment themes to explore their influence on and association with the studio concept and forms. The analysis process allowed for the identification of schools’ studio concepts and forms, the factors that have led to the diversity of studio models (RQ1–2). The section concludes by examining the use of the term studio (RQ1) and the potential implications for the studio concept and form as a result of diversity of studio models (RQ3).

4.2.1 Philosophical position of learning and teaching

The key issue identified in the Philosophical position to learning and teaching theme (shortened from this point on to philosophy) was how the school approach to design teaching was informed by architectural practice and education, as compared to concepts of learning and teaching. Exploring the philosophy theme is important as it may underpin a school’s response to constraints and opportunities presented by the
changing higher education landscape. It also provides a background as to how academics from the school approach learning and teaching in relation to supporting and understanding how student learning occurs, as well as their connection with learning theories. Many studies (Anthony, 1991; Beinart, 1981b; Cowdroy et al., 2007; Dutton, 1991; Salama, 2015; Till, 2005; Webster, 2004, 2007 & 2008; Wood, 2009) have found that architectural educators often misunderstand how learning and teaching theories are enacted. The reference to educators may include full-time academics, experienced practitioners, graduate architects and senior students. Hence the analysis under the philosophy theme is informed by the influence of architectural practice and education (shortened from this point on to architecture) and concepts of learning and teaching (shortened from this point on to learning concepts).

The results of the philosophy theme are based on the analysis of two interviews with 10 academics. The schools T3l and S3s were thought to be most influenced by architecture in their responses about the studio. These schools are considered opposite to each other as T3l represented the third school example using teaching spaces (T3) with large (l) student population (>500) and S3s represented the third school example using studio facilities (S3) with a small (s) student population (<350). Despite these differences in teaching and studio spaces and student population, both indicated that a "good" design teacher relies on their practice experience and that teaching is an extension of this. The assistance provided by university-based learning and teacher support was thought to be rigid and unproductive. The quotes below illustrate these perspectives.

The first quote was made in the context of discussing the design assessment and how those outside the design discipline cannot easily understand or contribute to the process if they fail to understand that the "value" awarded is socially constructed and may vary. The quote indicates that the academic was frustrated by persons aligned rigidly to the process of awarding grades based on prescribed performance indicators and the need to mark creative works out of a mark of 100. For this academic, the proposed alternative was to award a fail, pass or distinction, which according to them would be a more accurate and fair reflection of the design panel consensus process.

[If we had a]… ‘tight’ L and T person along, they'd probably be horrified. But I think that's the discrepancy between the epistemologies. I just don't think people understand how to evaluate design unless they're a designer. It's so much unspoken that you can certainly try and unpack it, and that's what we try and do, but it's still quite hard (T3l).
In the interview, the academic also conveyed that their practice-led approach to teaching and assessing design was largely unobstructed by central learning and teaching systems and policies. This was evidenced by the condensed information provided in the unit outlines and the design indicators used to assess a year level when compared to other schools. The school had maintained existing discipline-specific practices from centralised learning and teaching systems and policies as result of the high reputation connected to graduates and academic staff by architectural practice.

A second quote (also from school T3l), shown below, provided the perspective that being a "good" design teacher comes from experiences in architectural practice (even though the respondent was a full-time academic which, in the Australasian context, implies restrictions on accessibility to practice as more traditional research outputs are typically rewarded). The quote suggests that the academic approach to teaching was to undertake practice through a live project, which also became the vehicle to teach and involve students in their learning. This, therefore, allows the full-time academic to continue to practice and potentially to use a more apprenticeship-based model to teach.

...it's mainly driven through what I've experienced through practice, not through an academic idea of what I should be teaching or a theory-driven thing. It's come through practice, it must. So if you were to say what my studios are like, they're like a version of projects that I've undertaken ... But somehow with additional dimensions that they've been done with students (T3l2).

The respondent (T3l2) who provided the quote above also conveyed that their indicator of a "good" design teacher was someone who received invitations to crits and benchmarking in other reputable schools of architecture, a view that was shared by other colleagues.

Similar perspectives were evident in the responses from staff at school S3s, where discipline-based teaching was seen as critically important by the staff. There were no other appropriate models under consideration and the statements “it was the way I was taught” and “I don’t feel I can change” (S3s1) were consistently articulated by staff of this school. The following quote demonstrates the bias towards architecture-based practices and indicates a more teacher-centred approach in the description.

[J]It's the only way to teach design to architecture students. So people who talk about using other methods probably haven't taught the student very well or at all or something. I mean, you need to, the student needs to bring in work, they need to talk about it, you need to have a discussion about it and it needs to be reflective and you need to bring up buildings and you need to open up books and all this kind of thing. That's what I think is...
the only way of opening up what design is. So studio is really about the only way that you
can really get inside someone's head and push them forward (S3s).

Even though the documentation of the design units was comprehensive and indicated a
problem-based learning (PBL) informed curriculum, this was not discussed with any
depth in the interviews where the term PBL was interchangeably used with studio-
based teaching. This suggests that the influence of cultural norms in the architectural
studio was informed by a PBL methodology, either spoken or inferred. However the
interviews (S3s1&2) did not indicate that it was enacted through descriptions of
teaching in the studio facilities or engaging students in their learning.

It is apparent from the analysis of schools T3l and S3s (interviews with two senior staff
from each school) that the architecture philosophy mostly informs their response to
design teaching. Both members of staff appeared reluctant to consider alternatives to
established design teaching practices that did not align with architectural practice even
though conditions for the studio were changing in response to the higher education
landscape. The differences between the philosophical stance are clear when related to
the two other groupings of schools (T1m and T2s; S1m and S2m) and how this
informed their response to tighter resourcing. Both groupings shared similarities in
using studio facilities (“S”) or teaching spaces (“T”).

In comparison, in schools T1m and T2s the philosophy espoused by the two senior
members of staff interviewed was more informed by learning concepts than by the
influence of architecture. Interview statements corresponded with unit outline
descriptions and targeted observations of the physical spaces. Foremost was the
articulation that design thinking and the designing process “can be taught” by stating
and aligning learning outcomes, assessment and a program of learning and teaching
activities. Not only was this explicitly articulated in the unit outline introduction and
structure, but there was also evidence in the assessment criteria that referred to the
importance of establishing a culture of engagement, learning and reflection, as
illustrated in the quote below.

We teach in our school that design can be taught, that it’s not God given. It’s a process
(T2s).

Other forms of evidence of the influence of learning concepts include multiple
references to learning models employed in the unit outlines. The models referred to
include project-based or problem-based learning, self-directed learning, individual
learning, reflective learning, active learning, authentic learning and peer learning. The two academics from schools T1m and T2s appeared to be influenced by concepts of scaffolding learning, evidenced by the unit programs and activities. Further evidence of learning concepts informing their design teaching was in preparing tutors to be coaches. The deliberate references made to coaches instead of tutors were made with the objective of engaging a large number of students, over a limited period, to experiment and reflect in small-group discussion in order to develop their understanding. The coach reference inferred to students that they were doing the learning and the coach was there to support their learning, not to provide a solution. The philosophy espoused by the interviewees was to engage the entire class in active learning experiences for the total 2–3 hour session. The teaching approach was not limited to an individual student being specified 10 minutes of one-on-one instruction. This was achieved through the setting of tutorial-based activities or employing a workshop format.

The final grouping of schools S1m and S2m is thought to sit relatively between the influence of architecture (T3l and S3s) and learning concepts (T1m and T2s). Such an interpretation was formed mostly from interview statements, as the unit outline documentation was compact, fitting on a double-sided page. It was especially compact when compared to the examples provided by schools T1m and T2s that are explicit and expanded in nature with 10 pages or more of specific unit information. The interview statements conveyed discipline-based practices in studio settings, such as developing students’ capacity to self-monitor their decisions and outcomes during the design process and making “readings” and describing not only their own work but also their peers’ work (S1m1). This relates to the influence of the architecture philosophy, however the descriptions of instruction were unlike schools T3l and S3s because they described the importance of the teacher demonstrating care and commitment to support and encourage all students in their learning. This is illustrated in the quote below.

>You can communicate that in a variety of ways but the way I typically do it is I – and I actually do – I get excited about what they show me and I show them that excitement by enthusiastically waving in and showing them the potential, regardless of whether it’s an A or a D student (S2m1).

In summary, the academics interviewed indicated that their schools’ philosophies gravitated across a variety of responses that were informed by a different blend of the traditions of architectural practice and education with concepts of learning and
teaching. This may be as a result of schools having responded to the changing higher education landscape and in the implications this has had for the studio concept and its forms. Figure 4.5 illustrates the relative position of schools, according to the analysis of the data, on a continuum where architectural practice and education forms one end and the concepts of learning and teaching form the other. The numeric values placed on the continuum are only used as reference points and do not hold or signify numerical values.

Figure 4.5 Underlying philosophy of academic staff in six schools

These relative positions of academic staff in Figure 4.5 can be linked to the literature (Budge, Clarke, & del la Harpe, 2007; Devlin, 2006; Kane, Sandretto, & Heath, 2002; Kember, 1998; Shulman, 2005) and explained by conceptions of teaching and signature pedagogies in the profession. These associations are discussed further in Chapter 5. There are two significant issues that have emerged from the philosophy section:

- Difference in espoused actions of learning and teaching from an architecture philosophy to a learning concepts philosophy; and
- Potential underpinning of school responses to reduced resources and increased student enrolments.

4.2.2 Institutional climate

The institutional climate theme is characterised by the influences imposed on the studio by the institution through: allocation of resources; workload allocation; curriculum structure; policies related to teaching delivery and assessment; and the institutional profile of learning and teaching. Issues were identified through the design units chosen by academics to discuss the form of their studio. Academics were not asked in the semi-structured interviews (Appendix 3.6) about the institutional climate
theme directly but themes emerged through the discussion of the design unit, analysis of the unit outline and assessment descriptions, and targeted observations of the physical places for design learning. The method also reports on some of the *curriculum* theme results, as they are also closely related to the resourcing and teaching delivery.

A summary of key characteristics from Table 4.5 shows the diversity in design units explored. It was apparent that enormous differences existed between design units. This was expected since academics chose a design unit that they taught recently. Furthermore the design unit selected by each academic principally used project-based learning. The consistency of project-based learning may be due to a legacy of the five-year architectural program being taught at an undergraduate level.

**Table 4.5 Comparison of design units chosen by the purposeful sample**

<table>
<thead>
<tr>
<th>Academic</th>
<th>Discipline</th>
<th>Program level</th>
<th>Curriculum structure</th>
<th>Design subject area</th>
<th>Overall class size</th>
<th>Av. SSR</th>
<th>Contact hours/week</th>
<th>Av. tutorial time per student per week (mins)</th>
<th>Number of weeks</th>
<th>Studio facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>S3x1</td>
<td>Arch.</td>
<td>UG core</td>
<td>48 double</td>
<td>85</td>
<td>11</td>
<td>6</td>
<td>33</td>
<td>13 Y</td>
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<tr>
<td>S1m1</td>
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<td>UG elective</td>
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<td>24</td>
<td>12</td>
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<td>12</td>
<td>60 12 Y</td>
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<td>UG elective</td>
<td>54 double</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>6</td>
<td>23 13 N</td>
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<td>T3l3</td>
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<td>UG elective</td>
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<td>6</td>
<td>27 13 N</td>
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<td>S2m1</td>
<td>Arch.</td>
<td>PG elective</td>
<td>36 double</td>
<td>14</td>
<td>14</td>
<td>0</td>
<td>8</td>
<td>34 12 Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2s2</td>
<td>Arch.</td>
<td>PG core</td>
<td>42 double</td>
<td>45</td>
<td>15</td>
<td>1</td>
<td>varies</td>
<td>13 N</td>
<td></td>
<td></td>
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<tr>
<td>T2s1</td>
<td>Multi</td>
<td>UG 1st yr core</td>
<td>42 double</td>
<td>180</td>
<td>20</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td></td>
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</tr>
</tbody>
</table>

**Exceptions**

<table>
<thead>
<tr>
<th>Academic</th>
<th>Discipline</th>
<th>Program level</th>
<th>Curriculum structure</th>
<th>Design subject area</th>
<th>Overall class size</th>
<th>Av. SSR</th>
<th>Contact hours/week</th>
<th>Av. tutorial time per student per week (mins)</th>
<th>Number of weeks</th>
<th>Studio facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1m1</td>
<td>Arch.</td>
<td>UG core</td>
<td>32 single</td>
<td>250</td>
<td>20.0</td>
<td>1</td>
<td>3</td>
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<td></td>
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<td>T1m2</td>
<td>Multi</td>
<td>UG core</td>
<td>32 single</td>
<td>280</td>
<td>10.0</td>
<td>1</td>
<td>3</td>
<td>18</td>
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<td>S3s2</td>
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<td>PG Final core</td>
<td>48 triple</td>
<td>40</td>
<td>10</td>
<td>1</td>
<td>5.5</td>
<td>30</td>
<td>13 Y</td>
<td></td>
</tr>
</tbody>
</table>

120
Table 4.5 shows the design units were either offered in the curriculum as a compulsory unit (shown as core in the table) or an elective unit (six versus four). The difference between compulsory and elective units is apparent when related to the overall class size and the time for lectures. Compulsory design units operated with a larger class of 45 to 280 students and commonly employed a one-hour lecture whereas elective design units operated with a small class of 14 to 24 students and no lecture. Contact hours ranged from four to 12 per week. The average SSR range was from 10 to 20 students but typically 14 to 16 students. The average tutorial time per student per week varied significantly from 9 to 60 minutes but typically 27 to 34 minutes. The average tutorial time per student per week provides a useful indicator of the likelihood of different teaching approaches being employed and overall resources per unit. However, it is artificial as most design units infrequently employed one-on-one tutorials in the purposeful sample group. Design units were more likely to be double-weighted units than single- or triple-weighted units (seven versus three). The percentage of the design subject area in the curriculum ranged from 32% to 54%. The number of weeks to study the design units varied from 9 to 13 weeks, however 13 weeks was typical. Access to studio facilities was not necessarily typical (four versus six). Figure 4.6 distills these key characteristics further by illustrating the spectrum of a typical design unit in the purposeful sample. These interpretations and others made to the data collected are explained in the following paragraphs.

![Figure 4.6](image)

**Figure 4.6**  The spectrum of a typical design unit in the purposeful sample group

Schools T1m and T2s were believed to be most significantly affected by the *institutional climate* theme through centrally managed policies. The evidence supporting this assumption include large overall class sizes and SSRs, and less tutorial time per student (Table 4.5). This meant that staff in both schools had to adopt large-scale teaching practices such as lectures and tutorials.
School T1m was particularly influenced by the *institutional climate*, with the greatest overall class size of 250 to 280 students, as shown in Table 4.5. A compulsory curriculum structure was in place, which required all students from the one year level to undertake the design unit, including set design project and activities. The typical format of the design units in T1m commenced with a lecture and was followed by a tutorial each week. The pattern was only broken twice during the semester for crit presentation and assessment during the tutorial, and the lecture did not occur in that week. The delivery format afforded an increased economy of staff resources, due to the use of one common lecture for the entire class and tutorial groups being resourced at an SSR of 1:20, which is at the higher end (up to 1:25). As a consequence, the average tutorial time per student per week for a typical T1m unit is at the lowest end, at nine minutes. An attempt was made by T1m² to improve the SSR and tutorial time per student by reducing the number of weeks in the semester to nine and using the resources allocated for marking. The result was a doubling of the tutorial time per student to 18 minutes, with an SSR of 1:10. The only shortcomings of this change were the reduced number of weeks and significantly increased marking load for the unit coordinator. Irrespective of the approach and allocated resources, these units were amongst the lowest for a design unit in the sample group. This may be attributable to the design unit being a single-weighted unit. A single-weighted unit refers to its size and represents the smallest unit size in the curriculum structure. The single unit in school T1m signifies a modularisation of units, where all units were of an equal weighting. Modularisation of units is a condition of a centralised management structure employed by some undergraduate degrees in Australasia.

Staff interviewed from schools T1m and T2s commented that overall class sizes often exceeded access to a sufficient number of teaching spaces (pin-up and mobile furniture for group work) and tutors. As a consequence, both schools were required to repeat tutorials due to the central timetabling of spaces, and in one example the lecture also needed to be repeated due to a lack of space. Furthermore, institutional policies regulated unit outlines and criterion-referenced assessment through template design and some form of auditing. In school T1m assessment needed to be staged and employed different deliveries. Tutors were either required (T1m) or offered (T2m) to attend formal induction training provided by the university to improve the quality of learning and teaching. In short, the implication of the *institutional climate* in schools T1m and T2s was that the time spent per student in a tutorial would be nine to 12 minutes per week (Table 4.5), when the average of the schools was 27 minutes per
week. In actuality the design teaching methods employed by these schools had changed and were more “industrialised” to engage large tutorial groups of 20 and above, by involving group work/event-based activities during the two to three contact hours. One-on-one instruction was strongly discouraged due to the limited time per student. Another implication from changing the teaching methods to accommodate large-scale teaching, was the increased time required by the unit coordinator to prepare and manage the tutorials, tutors and marking.

In contrast, schools T3l, S1m and S2m experienced relatively limited influence from their institutional climate in terms of managing reduced resources and increased student enrolments. There was limited influence exhibited by the university on the teaching and assessment approach, since design units were offered in an elective-based curriculum (Table 4.5) where the students chose the majority of design units from an offered selection. These schools all prioritised design units above other curriculum components through double weighting and design units were cross-subsidised by reducing the other types of units to principally lecture-based delivery and assessment tasks. Tutorials had either been significantly reduced in contact time or eliminated. In addition, small overall class sizes of approximately 14 students (Table 4.5), which may include students from multiple year levels, were accommodated. The unit level of undergraduate or postgraduate did not appear to have any bearing on the resources provided. There were minimal requirements imposed on the unit outlines, and they were brief in description and assessment criteria. The rationale as to why these schools received greater resourcing or the ability to manage their resources more than the previous schools T1m and T2m is explored below.

School S1m was the least affected by the institutional climate, since they were able to maintain an approximate 60 minutes per student per week and had studio facilities. The only pressure being experienced in the school was to maintain a sufficient number of studio facilities for the gradual increase in student enrolments. A few studio facilities had been converted to hot-desks to increase the number of places available to students. There were also pressures being experienced in the form of threatened “claw-back” of studio facilities to provide more timetabled teaching spaces for disciplines other than architecture. There were no other forms of evidence indicating why this school was relatively free from university management systems and influence.

The opposite was the case for school S2m, where studio facilities had been expanded but contact hours were being reduced and, as a consequence, the championing of small-
group tutoring rather than the preferred one-on-one practice was occurring. Irrespective of the teaching method being used, students were still gaining 34 minutes of personal tutorial time per week, whereas the sample group average was 27 minutes. The extension of studio facilities had been attributed to the success of the school in attracting students, the accomplishment of graduates and a supportive Pro Vice-Chancellor. A respondent observed that this may often not be the case in universities in the Australasian region.

We've got a few issues. The first is space. I mean all schools of architecture are under pressure with space and that is my job to argue it to the people above me which so far I'm having reasonable success... They are having to build us more space. This is a very unusual university and they really love the architecture school. We're a cash cow and we're in the faculty of science. They find us intriguing and cute and interesting you know which is not my experience of other universities where they think architecture should be in the TAFE. We have a very supportive Pro Vice-Chancellor whose son went through the design program so it is kind of different. I get a lot of support from above actually this time. A different experience I have to say. It is rather nice (S2m1).

School S2m also identified the pivotal role government policy played in affecting institutional climate. Despite the reduction in staff resourcing, their academic leader indicated the size of the school had remained at a manageable level (approximately 500 students) in 2010 as the government had recently altered and reduced the number of student-funded places, thereby halting the institution’s plans for growth. The following quote highlights that the institutional characteristic is more businesslike and aspirational for growth.

if the university had been left to its own devices it would've had us growing at six per cent a year, nine per cent a year, depending on – because we could just keep on taking more and more. In a way it's a relief because our buildings are bursting at the seams and now we're not looking at growing in terms of building more space (S2m1).

From the interview data collected, this was the only reference made to government policy. Many responses have indicated that their immediate concerns were with their school or university and were about the reduction in resources and workload demands but the link to government policies was not evident.

School T3I staff attributed the limited influence of institutional climate on their situation to a similar argument of S2m that the tolerance of, or support to, the school came largely from the defence that graduates and the school were held in high esteem.

The staff student ratio will always be threatened, and core studio is always going to be a model that you could potentially see as a victim. But it will only be a victim if, for some
reason, it’s got nothing to defend itself with. The thing is, if reputation, in terms of students coming out and what they do, is there, then it’s difficult to... (T3l).

It was also noted that academics regularly over-taught, since the design unit often doubled for creative research output. A distinction from the other schools (S1m and S2m) less impacted by university management was the absence of studio facilities. Another distinction was that school T3l represented the largest school in the sample group, and yet an elective-based curriculum structure with small-group teaching prevailed, despite the perception that studio is labour intensive.

On the other hand, school S3s did not belong to the devised groupings of significant (T1m and T2s) or limited (T3l, S1m and S2m) influence from the institutional climate. S3s was considered to be in-between these two groupings. The contact time per student (approximately 32 minutes plus lectures), the ability to cross-subsidise design units and accessibility to studio facilities fitted into the limited influence criteria. However, similarities existed with the significant category of a compulsory curriculum structure, very detailed unit outlines and assessment (approximately 50 pages), and resourcing at a lecture/tutorial rate (Table 4.5). In essence, the school decided to maintain its small tutorial classes of 11 students, which meant that the contact time had to be halved but it was still approximately 32 minutes per student. All units, other than design, were to be taught primarily by lecture and supported with online resources, with minimal or no tutorials to cross-subsidise the resourcing of design units. As a gap still remained to resource design studios at an SSR of 1:11, funds were reduced further to postgraduate design units, as these students were more able to be self-directed. However, academics teaching at the postgraduate level reported that they “over-taught” the allocated contact hours, and relied on the goodwill of tutors to maintain the SSR and similar contact hours, at historical levels.

I’ve got a real problem because the people are spending a lot more time than they’re actually being paid for... I have one person who kind of does it for free, I suppose. A member of staff, they don’t have to do it and they just do it. But you need that to survive, the money, you know if you want to make sure students are getting the right kind of feedback (S3s).

Despite the combined effect of the institutional climate and school-based decisions, the studio form and design teaching were not as significantly affected here as at schools T1m and T2s, however the staff were impacted.
The influence of the *institutional climate* on schools and their studio form was determined from the results above. The key issue seen across schools was the time spent guiding and instructing students in project-based learning, which was the delivery method preferred by all of the schools. The average tutorial time per student ranged from nine to 60 minutes and from three to 12 contact hours per week (see Figure 4.7 a & b) with an SSR of 1:11 to 1:20. Figure 4.8 shows the typical resourcing of a design unit in the schools, however, it excludes lecture contact hours for schools T1m, T2s and S3s, and the average tutorial time per student per week was based on one-on-one instruction. This allowed for a more like comparison between schools and illustrated the influence of the *institutional climate* theme on the studio. Finally, school T1m represents the only single-weighted design unit, whereas the others are double weighted. In school T1m the design units were only single weighted in the undergraduate degree so it was considered typical. As shown in Figure 4.8, schools T1m and T2s were the least resourced in terms of time to guide and support student learning in tutorials, which led to the incorporation of group work/event-based activities. There was less difference across the other schools (T3l, S2m & S3s) except for school S1m with the greatest resources.

![Figure 4.7](attachment:image.png)

**Figure 4.7 Variations in the typical studio of contact hours, tutorial time per student and the design curriculum area**

Secondary issues such as the restrictiveness of learning and teaching policies in relation to unit outlines, assessment criteria and delivery, access to sufficient number of teaching spaces and tutors and the curriculum structure, further informed the difference of *instructional climate* experienced across schools. This is reflected in the overall grouping of schools in Figure 4.9. Academics from T1m and T2s reported being the most affected, adopting large-scale teaching practices due to a standardised approach to resourcing and the delivery of learning and teaching. In contrast,
academics from T3l, S1m and S2m experienced limited influence from the *institutional climate* on the studio concept and form. Those interviewed from school S3s were determined to be in-between due to restrictions from university learning and teaching policies on curriculum structure and resourcing, but they also had access to studio facilities and chose to cross-subsidise their design units by making other units principally lecture and assessment based.

![Figure 4.8](image)

**Figure 4.8** Contact hours for a typical design unit in six schools (2007–2011)

![Figure 4.9](image)

**Figure 4.9** Institutional climate according to academics interviewed in six schools

### 4.2.3 Curriculum

To understand the influence of the *curriculum* theme on the studio form, the following issues were examined including the curricula structure, and the size and resourcing of the school. The project vehicles and learning outcomes in the design units chosen by
academics in the study were excluded from analysis, as they did not contribute to the answering the research questions (RQ1–4). The project vehicles are listed in Appendix 4.1. Much of the curricula structure results are presented in the institutional climate section due to the close relationship when considering the influence of resourcing and delivery on the studio form. The analysis showed that the curriculum structure was the main issue influencing the studio form and the significance is explained below along with other curriculum issues.

The curriculum structures implemented by academics interviewed varied according to the inclusion of an elective structure versus one that was fully defined with each component being compulsory (Figure 4.10). In the fully defined compulsory curriculum structure all students from the same year level studied a common design unit. The overall class size was large, and an economy was achieved by employing conventional lectures and tutorials to deliver knowledge to the students. On the other hand, an elective structure provided students with choice, meaning students selected their design units from a pool of offered design units, where multiple year levels were accommodated within each of the electives. This equated to vertical streaming of design units, where students selected an elective from the pool based on project type or the studio leader. The elective structure was typically employed after a common first unit or year. More recently the term elective may also signify either the order in which students take every design unit needed to graduate or the choice of the studio leader with the same project, however this was not true at the time of data collection.

Analysis of Table 4.5 shows that there was an association between the curriculum structures, the teaching methods employed and the resources provided. The elective structure related to a small overall class size of 14 to 24 with an SSR of 1:12 to 1:14. The delivery was reliant on small-class teaching techniques such as workshops and
crits. The schools demonstrating these characteristics were S1m, S2m and T3l. There was typically an adequate amount of contact time for students to readily engage together in discussion as evidenced by the average tutorial time per student per week of approximately 27 to 34 minutes. However, school S2m differed from the other schools (S1m and T3l) by alternating between an elective and compulsory structure each semester.

The fully defined compulsory curriculum structure was found in three schools, T1m, T2s and S3s, and was related to large class sizes of 85 to 280 students, studying in the same year level. Typically those interviewed employed lectures and tutorials to manage the large classes. Academics from schools T1m and T2s were more affected than S3s due to reduced resources that allowed approximately nine to 12 minutes instruction per individual per week. Increased difficulties were also reported in engaging 20 students, therefore the tutorials were structured for group work and exercises. In addition, these two schools offered at least two compulsory design units that were prescribed for design disciplines other than architecture. School S3s appeared to differ in maintaining small-class teaching techniques as in the elective structure by cross-subsidising design units from non-design units and over-teaching the allocated hours. The sustainability of maintaining more personalised instruction may be questionable.

No association could be established between curriculum structures, resourcing and school size. Figure 4.10 shows medium-sized schools may employ an elective, compulsory or a combination of both curriculum structures. It would be assumed that the fully defined compulsory curriculum structure offers the greatest economy in teaching methods and resources but these were found in schools in the small- to medium-sized schools (T1m, T2s and S3s). The large-sized school employed an elective curriculum structure. This shows that school size does not necessarily suggest the curriculum structure.

In the six schools analysed there was an association between curricula structures and the teaching methods, as well as the institutional climate. Figure 4.10 illustrates the different structures with elective and compulsory at opposite ends of the continuum and the blend of the two in the midpoint. The position of schools T1m, T2s and S3s at the compulsory structure end mostly reflects the significant influence of the institutional climate in Figure 4.9. School S3s differed from schools T1m and T2s as S3s was able to cross-subsidise design units. At the other end of the continuum, schools T3l and S1m are reflective of schools that either had an increased ability to articulate
their discipline-based structures and practices to their universities, or their universities were accommodating of divergences from a centralised management system. Irrespective of these issues, schools T3l and S1m have maintained an elective-based curriculum structure and the small-group teaching techniques preferred by schools of architecture.

The position of school S2m in the centre of the continuum between the elective and compulsory curriculum structures (Figure 4.10) shows a school in transition due to the effects of the changing higher education landscape. Over the period of 2007 to 2011 the school experienced a gradual reduction of resources from 12 contact hours to 10 to eight and, at the start of 2011, six contact hours. The implications were that the curriculum structure had altered in addition to the teaching methods. These are explored in more detail in section 4.2.5 Teaching methods.

4.2.4 Environment

The environment theme encompassed the immediate physical and social setting that students experienced in their design unit. The key environment issues influencing studio diversity were the type of physical setting, its purpose and links to teaching methods and its success in engaging students. Firstly, the type of physical setting included the studio facilities or teaching spaces, which could be in the form of conventional tutorial rooms, design classrooms, studio spaces, lecture theatres and computer laboratories. The purposeful sample group was deliberately composed of three schools where the teaching occurred in teaching spaces and three schools where the majority of students had access to dedicated studio facilities. In Stage 1 results, each school in Australasia had access to computer laboratories which, at the time of the data collection, academics reported that these facilities were more highly utilised than studio spaces (Zehner, 2008, p. 6). Table 4.6 shows a comparison of the dominant setting types for design learning and teaching in the purposeful sample, and this is explored below.

The teaching spaces in schools T1m, T2s and T3l were timetabled for repeat tutorial groups or different classes and included moveable tables and chairs and pin-up boards on the walls. Often the spaces were larger than conventional tutorial rooms and incorporated moveable walls or large sliding doors to connect the spaces and tutorial groups. The rationale was to maintain the opportunities for exchange between groups during activities, discussions, pin-ups of work, or to create an exhibition space.
The quote below explains that the spaces were a little larger than conventional tutorial rooms but in terms of furnishing they were not too different (except for the pin-up facility). In the respondent’s opinion the problem with the teaching spaces was that other classes also used it so it was impractical for project resources, research, models and drawings to remain in the space and be secure.

We just have classrooms that might have a little bit more space in them than the other classrooms on campus, but qualitatively they’re not that different from — the furniture’s not any different really. They do have characteristics that a lot of the other spaces don’t have, but they also don’t build up or acquire the trappings that other more sort of permanent spaces would have in other schools (T1m²).

Table 4.6   Comparison of dominant types of physical settings

<table>
<thead>
<tr>
<th>Schools</th>
<th>Setting</th>
<th>Furniture</th>
<th>Computers</th>
<th>Access</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1m &amp; T2s</td>
<td>Teaching spaces (includes lecture theatres)</td>
<td>Moveable tables, chairs, walls and pin-up walls/boards</td>
<td>None</td>
<td>Timetabled for allocated class hours</td>
<td>Production activities, group work, and includes lectures</td>
</tr>
<tr>
<td>T3l</td>
<td>Teaching spaces</td>
<td>Moveable tables, chairs, walls and pin-up walls/boards</td>
<td>None</td>
<td>Timetabled for allocated class hours</td>
<td>Gathering and discussion</td>
</tr>
<tr>
<td>S1m &amp; S2m</td>
<td>Studio facilities</td>
<td>Dedicated workspace, pin-up and storage</td>
<td>Few distributed desktops</td>
<td>All hours</td>
<td>Readings of work, working out of class, and socialising</td>
</tr>
<tr>
<td>S3s</td>
<td></td>
<td>Bank of desktops</td>
<td>Bank of desktops</td>
<td>7am to 11 pm</td>
<td>As above but include lectures</td>
</tr>
</tbody>
</table>

The teaching spaces remained open for students to use between timetabled classes, however these spaces were also used for design disciplines other than architecture so occupation was temporary and not attractive to students due to the disruptive nature of the space. No school computers were present in these generalist-teaching spaces: these were located in dedicated computer laboratories that were shared with students from allied design disciplines such as interior or landscape architecture. There was an acceptance in these schools that the circumstance and context of teaching spaces would not likely change and, therefore, schools adapted their teaching methods and the purpose given to the space during teaching sessions. The teaching method utilised by these schools was a mixture of lectures and tutorial activities. The lectures facilitated large-scale delivery to the entire class, which ranged between 45 and 280 students, and provided context and instruction for the group activity or individual exercise in the
following tutorial. School T2s had introduced short crit presentations in the lecture theatre because it facilitated the entire class to see and hear the design outcomes, otherwise there was an insufficient number of spaces for the tutorial presentations to happen at the same time. The lecture theatre was thought to be suitable for the display and moderation of students’ work during the assessment process. The influence of the space on teaching can be noted in the quote below. Classrooms are referred to as “design” classrooms.

_They all experience the same inputs which, for resource reasons are in lecture format because this university is set up for lectures and tutorials so the space drives a bit how learning can happen. We don’t have any spaces in this school at all where even more than 120 people can meet so all the students have the same learning inputs and learning opportunities … We have physical workspaces for students, which are called design classrooms (T2s)._

_in the environment where we have a compact experience it’s so important that those three hours are energised. So, inextricably the space and the approach to the teaching have to come together in order to – and I think a lot of us are trying in different ways to make that happen, and we’re making I think quite a lot of progress in very different ways (T1m)._

However school T3l operated by small-group teaching practices and privileged discussion of student work over production-based activities, as the space was perceived unsuitable for the production of work.

_It’s not so much a space to do the actual work of the studio, as to do the — i.e. as in the drawing — but to do the discursive, discussed aspect — the group work. Especially in the way that it’s set up here, where you don’t have studio space to do work. The studio is the place you bring your work to be discussed. Not where you actually sit and do the work (T3l)._

Although the facilities and the furniture were essentially the same for the three schools categorised with “T” for teaching spaces, T1m and T2m emphasised production and skill development due to the lack of studio facilities and the opportunities to learn from senior students whereas T3l thought its space to be inadequate for these types of activities. School T3l thought that it was more valuable for the students to develop their critical design reflection skills and learning from a small-group discussion/internal crit. This suggests that the quality of the space alone does not influence teaching methods, but involves a number of factors, such as _philosophy_ of how best for students to learn design, the _curriculum_ structure and _institutional climate_ to allow for small-group teaching techniques based on discovery, discussion and debate. Finally is the issue of how to engage students in their learning and developing a studio culture when the
learning and teaching spaces are timetabled classrooms, as many perceived that studio facilities draw students together and support peer learning. Various strategies were employed, including intensive block programs, off-campus venues such as a project office or site, and group-led projects to foster a studio culture.

Yeah sometimes we’re not in necessarily great studio rooms, I mean I think our facilities are the problematic ones. ... I mean 50 per cent of students’ time is spent in design studio and in design. ... so we don’t have designated studio space so how do you develop that culture? There’s a culture in the computer labs. So I take the students away and that’s why I joke that it’s only 45 minutes away but we spend three days, two nights together. So that makes it a bond, [we] do that early in the semester (T3P).

The quote below articulates how the use of intensive block programs and sufficient staffing had created a positive environment where students wanted to come together to work in groups if they gained regular feedback. In this respondent’s opinion the space was not the central issue, rather what was central was the accessibility to regular support and feedback that came with sufficient staffing. However, sufficient staffing was not possible in school T2s due to the budget allocated by the institution.

If you run an intensive one-week program of the kind that you do with the [unclear] and so on, there’s no difficulty in generating a studio culture. The art hasn’t been lost. If there’s a reason for students to be together and get feedback from each other and from staff, they’ll be there. If there’s not, they won’t be there. So I see the problem as being more to do with staffing and therefore the budget than with facilities or changes in directions (T2s).

Essentially, the difference between teaching spaces and studio facilities was the social dimension created by the two different teaching environments. Potentially this was more constrained by factors such as limited contact hours, inability to store or leave work in progress, and facilities that accommodated model making, multiple power outlets and kitchenette for preparation of small meals and drinks to sustain longer working periods. These factors are typical of the characteristics and facilities offered by studio facilities where there was significant accessibility both during and outside of class hours and where students had dedicated workspaces and securable storage.

In contrast, the environment of the studio facilities received fewer comments in descriptions from schools with accessibility to studio place (“S”) during the interviews. Schools S1m, S2m and S3s instead commented in relation to concerns about increasing student numbers. Academics held concerns that the expansion of student numbers would mean that their ability to accommodate the majority of students might be threatened as universities in general were lacking space for the growth in university
enrolments. Observations of school studio facilities indicated the provision of dedicated workspaces for most students, which included a drawing board and/or desk with personal pin-up facility and securable storage devices for books, computers and other equipment (Table 4.6). In addition to these provisions, small communal kitchenettes to facilitate snacks and meals and significant access hours were provided so as to encourage regular, comfortable and long-term use by the students. These facilities were housed within school buildings, providing easy access for students and staff of the school. Recently, students having 24-hour access to studio facilities had diminished in two schools (S2m and S3s, 7am to 11pm) as this change ameliorated work health safety concerns involving fire or students potentially “living” there. School computers were either sparingly distributed across the studio facilities (S1m and S2m) or existed as a bank of computers (S3s). The computers in school S1m and S2m were located in laboratories separated from the studio facilities.

The purpose of the studio place was mostly seen as a location for students to gather and learn from each other through making readings and producing work either in or outside of class time. The term “reading” reflects a constructive process where one person explains what they take or understand from the work and how it may be improved. Very few references to the studio spaces articulated the social dimension and no references were made to studio culture or the enculturation of architectural values. This suggests that these qualities are generally assumed with studio facilities and not readily discussed. Only school S3s provided evidence in its interviews of the purpose of the space by describing how, as an environment, it supported learning by the clarification of requirements, thereby promoting cross-fertilisation of ideas and practices and accelerating learning outside of contact hours. It was also found to aid the transition of international students into school as it made for more opportunities for students to talk or become familiar with each other.

\[I\ think\ it\ [studio]\ has\ a\ very\ big\ role.\ \ I\ especially\ encourage\ students,\ I\ urge\ students\ from\ different\ culture\ backgrounds\ to\ set\ up\ camp\ and\ work\ in\ the\ studio.\ \ You\ know\ a\ guy\ who's\ just\ come\ in\ from\ Malaysia\ doesn't\ want\ to\ be\ sitting\ in\ a\ share\ house\ with\ other\ Malaysian\ students\ sharing\ bad\ information.\ \ He\ wants\ to\ get\ into\ the\ studio\ and be\ with\ people\ from\ all\ sorts\ of\ backgrounds\ so\ they\ can\ share\ a\ diversity\ of\ information.\ \ I'm\ heartened\ by\ the\ fact\ that\ some\ of\ the\ students\ actually\ do\ take\ my\ advice,\ if\ not\ straightaway.\ \ In\ fourth\ year\ I'm\ seeing\ a\ lot\ of\ the\ people\ who\ I\ urged\ in\ the\ latter\ half\ of\ third\ year\ last\ year,\ a\ lot\ of\ guys\ from\ Singapore\ and\ Malaysia\ in\ particular\ have\ all\ set\ up\ shop\ in\ the\ studio\ up\ there.\ \ Of\ course\ cross\ pollination,\ you\ know.\ Misconceptions\ are\ easily\ dealt\ with\ by\ one\ another\ because\ of\ the\ studio\ building\ (S3s').\]
It was also difficult to ascertain the level of student engagement outside of class time as this issue was not raised or elaborated on during the interviews by schools S1m and S2m. The semi-structured questions asked about how they engage students in their learning but the overall focus of these questions was on teaching methods so it is more than likely the connection was not made to students’ engagement in the studio facilities. Another issue related to academic staff availability outside of class hours and all respondents reported that this was only sparingly offered and conditional on students’ engagement with classes. The minimal response of S1m and S2m suggests that students’ were engaged with their studio facilities, and only one academic (S3s¹) from schools with access to studio facilities thought it to be ineffective due to 10% of students fully engaging with these opportunities. The quote below expressed their concern:

_Collaborative peer learning, ... if all of the students worked all of the time in the studio then that would be true. But it’s really only true for a very small minority of students who work consistently and full-time in the studio, 10 per cent at most (S3s¹)._  

However, to fully understand the effectiveness and engagement of students with studio facilities requires attention and evidence. In Stage 2 results, the lack of description by the academics with accessibility to studio facilities about the effectiveness of the studio facilities and how this may contribute to student learning is consistent with Stage 1 results (section 4.1.1.1 Physical place theme). This suggests that a shared understanding of the studio place was assumed by academics and, therefore, there was no need to articulate or define the concept of the studio. However, the lack of discussion and evidence calls into question the effectiveness of the studio facilities to engage students and create an environment for peer learning to occur.

The results suggest an association existed between schools with accessibility to studio facilities and the teaching methods employed which were largely reliant on small-group teaching practices. Only one (S3s) of the three schools incorporated lectures into their teaching methods and this was related to a large overall class undertaking the same project and design unit which was indicative of a fully defined compulsory curriculum structure. With so many students undertaking the same project it was thought more effective for information to be presented to all class members in one setting such as a lecture theatre space.

The third space type, the computer laboratory, was not the dominant setting for design teaching, however it was referred to as a place in which students worked outside of
class time. The computer laboratory was perceived to contain some of the same energy as a studio space, which in part emulated the studio culture associated with students working together in traditional studio facilities. At the time that data collections were made, wireless network connections were only just beginning to allow greater freedom for students with personal laptop computers and, later on, mobile devices. The computer laboratory was not further investigated as it was beyond the scope of this research. The purposeful sample did not contain any online design units.

To summarise, physical setting for design learning and teaching appeared to be the greatest indicator of the influence that the environment theme had on the studio form. The type of physical setting signified the crux of academics’ concerns and responses made. However, the split between schools according to studio facilities and teaching spaces did not always signify the purpose of the space and the teaching methods employed (Table 4.6). The schools with teaching spaces were divided by the purpose of the space and the teaching methods even though they were essentially the same with moveable furniture, walls and pin-up space. Schools T1m and T2s used the teaching spaces for production-based activities, group work and presentations as well as using lecture theatre spaces for delivery to the entire class. In contrast, school T3l thought that the teaching spaces were unsuitable for the production or developing of skills and the purpose of the space was a site to gather and discuss work that had been produced off-campus. As the class size was smaller in school T3l, with approximately 14 students, this meant that small-group teaching occurred and no lectures were prepared. The contrast across schools with studio facilities was less distinct. The difference was the inclusion of lectures for school S3s as they were a more effective form of delivery to a large class that was undertaking the same project than through repetitive delivery in tutorials. So, on this basis, the schools’ relative position on the environment continuum (Figure 4.11) was split between studio facilities (S1m, S2m and S3s) and teaching spaces (T1m and T2s), except school T3l which used the teaching spaces differently to schools T1m and T2s.

Another key issue that emerged from the environment theme was that schools with teaching spaces (T1m, T2s and T3l) were more adept at articulating the role of the studio facilities and studio culture, due to concerns of what may have been lost in the use of teaching spaces. Strategies were proposed and developed to foster better working relationships between students and support peer learning. On the other hand, the primary focus of schools with studio facilities was in maintaining sufficient places. One academic articulated the perception that there was a need for an alternative to
teaching spaces or studio facilities as both had shortcomings in the current climate of reduced resources, expanded student numbers, and students' wanting a more flexible approach to studying and learning (T1m²). Student engagement was also a key issue for schools with teaching spaces and was one that influenced their teaching methods, but schools with studio facilities proffered little response.

S1m, S2m & S3s
T3l
T1m & T2s

1
2
3
Studio Facilities
Teaching Spaces

Figure 4.11 Environment according to academics interviewed in six schools

4.2.5 Teaching methods

Much that distinguishes the teaching methods theme has been presented above, including the difference between small-group teaching, including the desk crit, and the use of lectures/tutorials in response to resourcing. However, both of these approaches drew from commonly used methods such as tutorials, workshops, seminars, lectures and/or more discipline-specific methods, such as desk crit (one-on-one), internal crit, peer reviews and site-visits. This section on teaching methods unpacks different approaches to teaching, the influence of the teacher's role and background (full-time academic, practitioner or senior student), prioritisation of one teaching method instead of multiple methods due to resourcing and the implications of tutoring and its attractiveness to sessional staff. These are summarised in Table 4.7.

To briefly recap, schools S1m, S2m and T3l employ small-group teaching and schools T1m, T2s and S3s lecture/tutorials. Within these main approaches subtle differences exist, for example school S1m has the most tutorial time per student per week of 60 minutes, double that of most schools, and therefore can accommodate both one-on-one instruction and internal crits each week. Students attended class three times a week whereas the norm for the other schools was once a week. No other school in Stage 2 had both the volume of contact and small SSR of 1:12 to consistently allow for individual instruction and a group crit. In contrast, schools T1m and T2s had the lowest
averages of tutorial time per student at nine and 12 minutes respectively (see Table 4.7) and reflected the economy being derived from a lecture/tutorial approach to delivery.

**Table 4.7 Comparison of schools’ teaching methods**

<table>
<thead>
<tr>
<th></th>
<th>Small-group teaching</th>
<th>Lecture/tutorial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of teacher</td>
<td>Small-group teaching</td>
<td>Lecturer, manager of tutors &amp; tutoring</td>
</tr>
<tr>
<td>Teacher background</td>
<td>Full-time academic or practitioner</td>
<td>Full-time academic</td>
</tr>
<tr>
<td>Tutor background</td>
<td>Practitioner</td>
<td>Practitioner &amp; senior students</td>
</tr>
<tr>
<td>Tutorial size</td>
<td>12</td>
<td>10 to 11</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>15 to 20</td>
</tr>
<tr>
<td></td>
<td>Av 15.</td>
<td>10* to 20</td>
</tr>
<tr>
<td>Class size</td>
<td>24</td>
<td>40 to 85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45 to 180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250 to 280</td>
</tr>
<tr>
<td>Tutorial groups</td>
<td>1</td>
<td>4 to 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 to 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13 to 28</td>
</tr>
<tr>
<td>Discussion (dominant)</td>
<td>One-on-one (desk crit)</td>
<td>One-on-three</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tutorial group — pyramid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production-based activity — small groups of 4 to 6</td>
</tr>
<tr>
<td>Average tutorial time per student per week (mins)</td>
<td>60</td>
<td>Av. 25</td>
</tr>
<tr>
<td></td>
<td>34</td>
<td>Av. 32</td>
</tr>
<tr>
<td></td>
<td>Av. 25</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Av. 9</td>
</tr>
<tr>
<td>Tutorial contact hours</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Tutorials per week</td>
<td>3</td>
<td>1 to 2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Lectures</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Timetable</td>
<td>No</td>
<td>Implications</td>
</tr>
<tr>
<td>Dominant setting</td>
<td>Studio facilities</td>
<td>Classroom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Studio facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Classroom</td>
</tr>
</tbody>
</table>

*Reduced the number of teaching weeks by 25% to improve staff student ratio

These two schools (T1m and T2s) formed another distinct grouping where the tutorials were principally focused on production-based activities in small groups to:

- engage large tutorial groups of 20 students,
- ensure consistency between tutorial groups (three to 28) and tutors
- ensure students attempted and practised defined skills during the tutorial before confronting these activities in isolation (no studio facilities)
- promote peer learning and team activities rather than students working individually.

Schools S2m, T3l and S3s, which were clustered around an average tutorial time of 30 minutes per student per week and attempted to maintain small-group teaching, in particular the internal crit with 11 to 15 students. There were also variations amongst
these schools but in principle they were more alike than the other schools. The variations were as follows:

- S2m alternated between internal crit one week and one-on-three discussion the next week.
- In school T3l the internal crit took place in a classroom instead of in studio spaces, and not every student was guaranteed to have their individual work discussed. The teacher facilitated the class discussion of successful approaches identified by class members from the student works pinned up to selected topics in the designing process. Group work was encouraged at the beginning of the design unit so as to encourage peer learning and sharing during the preliminary design phase.
- S3s used a combination of lectures and tutorials, however the tutorials were essentially an internal crit. Due to resource reductions during the period of 2007 to 2011, students used to have an internal crit one day with their “home” tutor followed by another day with a different tutor (S3s) but instead the two days either became one day or the second day did not include tutors. Both changes were, a consequence of academic staff wanting to maintain the small tutorial size of 10 to 12 students and the associated social and teaching dynamics that comes with a smaller group.

A similar situation in the reduction of contact hours occurred in school S2m as for school S3s, but it was more gradual, going from 10 to eight to six contact hours, instead of 12 to seven contact hours. The scenario was more difficult at school S3s to maintain the small tutorial class size because resources were further diminished at the postgraduate level. One academic (S3s’) described their strategy to maintain a second session in the postgraduate level as “sly”. It was “sly” as it had become in essence “voluntary” even though this was not articulated to students. The session was staffed by profile academic staff and sometimes a guest.

The reason that I started to do it was because costs forced me that I couldn’t have tutors twice a week. But there is an expectation and probably a need that the students do have two sessions a week. It was a little bit sly to begin with because I thought okay, I’ll give you one session and then I’ll make one session, I won’t mention the word voluntary but you know, if you need to talk to someone you can. Now, what that does is it immediately takes the heat out of someone saying well I’m not getting enough tutorial. Because that session is there and [for] some of them it does, I just stay there until there’s nobody left (S3s’).
The grouping of these three schools, S2m, T3l and S3s, suggests that the resources (contact time and SSR) influenced the teaching methods employed at the schools. Even though these schools shared a similar average tutorial time per student per week of approximately 30 minutes, their methods varied according to the culture and circumstances of the school. These methods in the tutorial are further unpacked below and may be commonly used in non-design units.

Historically, the meaning of the term “tutorial” could be understood and applied to many of the teaching methods above, except lectures. The tutorial method has varied and responded to the changing context of disciplines, and universities (Fry et al., 2009). The common parameters have been the involvement of a tutor and a small group of students, permitting an interactive discussion. Over time the size of tutorial groups has appeared to grow, one reference in the 1970s indicated that a tutorial might involve one to five students (Adderley et al., 1975) whereas today a tutorial may be from one to 25 students (Fry et al., 2009, p. 510). However, a tutorial of one to 25 students was still considered small-group teaching to encourage interactive discussion. Biggs (2003) recommended 12 or less students was practical to engage student participation. A larger group required more skills by the tutor and the student group (Biggs, 2003, pp. 82–83). Two schools, S1m and S3s, fitted Biggs’s recommended threshold of 12 or less students in a tutorial group. Schools S2m and T3l were relatively close with 14 students. Schools T1m and T2s, with 20 students, did not fit and academics thought the employment of activities would engage a group of this size and make up for a lack of studio facilities (Table 4.7).

Another difference across the six schools was the purpose of the internal crit and the roles of the student and tutor, which may be attributed to reduced resources. This may demonstrate the rationale and underlying culture of the school to students learning design. Where there was sufficient time for one-on-one/small-group tutoring and an internal crit (S1m and S2m), the internal crit involved the student presenter selecting two students to make “readings” of their work and then it was open to the group to make comments. The intent of doing this was to develop students’ skills to understand the design process and designing, an ability to articulate an evaluation and to become more confident in self-monitoring their own work. The tutor was more a facilitator and summed up at the end of the session.

What we do is read their work so I’m trying to work with their position always, not sending them backwards, not telling them to start again but to read what they’ve done, to look at this is what you’ve made. What does it mean that you’ve made this? How can we
understand this? How can we read this? So that almost anything will produce a response, but we can also give them very direct information about how it could be improved, but in a relatively non-judgmental way. So I'm trying to get them to become self-monitoring of the quality so that means it can't really work on me just saying yes or no, that's good, that's not. We have to kind of make them internally understand ways to improve their own work (S1m1).

The quote below also highlights that the reduction in contact hours at school S2m, by having small-group tutorials rather than one-on-one tuition, had been beneficial as it took less time but students also learnt how to critique and support one another's learning outside of class.

I introduced the group and I found it worked really well because they learned to critique each other in that context and therefore when I wasn't there they could refer to their own peer group which was three people maybe and continue with discussions. So even though it was only a six-week studio they still ended up producing work that I would say was comparable to a 12-week studio which alerted me to the fact that you don't need all that time. If you teach them to do their own crits while you're not around, they can step forward while you're not with them. So that was nice. I think that was a really important thing to learn and since then I've been mentoring tutors here to do the same thing because we've had to increase the staff student ratios and first-year people have really been under pressure. So I've gone in and said to them, hey guys, this is how you do it. No more one-on-ones, do it three-on-one, make it more comfortable and teach them how to crit each other and encourage them to learn and demonstrate their own technique and abilities. You get a double outcome actually (S2m1).

At school T3l a similar practice existed for internal crits where student voices were engaged in the critique and it was the principal method for teaching. The method involved all students' work being pinned-up, and students were given coloured sticky notes to place on work that was well demonstrating the criterion/topic. The tutor then facilitated a discussion amongst the students about their rationale behind the placement of their sticky notes, as well as response from the "author" of the work. In this method not all work was discussed. This was perceived as a more effective way to engage students in their learning as they could not rely on the individual discussion of their work and then leave.

I don't do that anymore because I find two things about higher education have changed. One is I don't think students are quite as committed as 20 years ago, and if you give them a crit [unclear] that they're supposed to be there for a three-hour, four-hour, five-hour session they'll just turn up for their appointment as if that's all they need to do. And that's not the spirit of design studio really. By not allowing them to do that, they have to come for the whole session, and it means there's better attendance. That usually works fine... I don't do appointments because I don't really believe in them anymore. I don't think they're suited to this day and age — to the Gen Y generation (T3l1).

It sounds rather hierarchical but it's meant to be the opposite which is either quite a constructive technique where you might give everybody stick-it notes for different
categories of evaluation of a project like best drawing or the most clear representation of the idea or something like that and use that at least once a studio. Where rather than being crit by the staff member, in a way — well, it’s not a critique in the sense that there’s a series of evaluations, ... it’s not saying what’s best so much as what theories of frameworks of value. Then the students actually stick the stick-it notes in each of the categories. So they have one for each category and they stick it on the drawings or the project that they think satisfies that. Then we just move around the room and whoever's stuck a sticker up on that piece of work, project, drawing, then it’s obviously not their work so they name their stick-it note and then they stand up and say why they put it on that piece of work (T3l1).

In contrast, school S3s, with the same contact hours (n=6) and fewer students (n=11), employed an internal crit where everyone's work was presented, and critiqued by the tutor. The discussion took place using a "pyramid" structure where the first work would tend to have the greatest length of time, as many common issues would be discussed, and these issues would not be discussed in future works unless a new issue or strategy emerged. This meant that time spent on subsequent work diminished in comparison to the students whose work was evaluated first. Students were encouraged to participate in the critique by showing hands to questions asked by the tutor.

Two schools, T1m and T2s, relied more on group discussion of results from the production-based activities and the summary of the outcomes at the end of the session. The use of mini-crits and final crits was used sparingly in these schools because of the reduced amount of time (three to four contact hours) and the tutorial size of 20 students. The SSR of 1:20 exceeds the recommended benchmark of the AIA’s policy of 1:17 (AIA, 2009). Academics in both schools reported different opinions about the effectiveness gained by teaching with an SSR of 1:20. Some academics reported the new constraints had led to better learning outcomes being achieved by the students because students were more engaged and involved in peer learning (T2s2, T1m academic staff). Reservations were held about the use of structured tutorial activities as staff believed their prescriptive and linear staging disadvantaged students by inhibiting understanding of design and the design process. Such views are illustrated in the quotation below.

I think it’s difficult. ... it depends on what the purpose — like where people are in a project and the purpose of the tutorial. It’s probably easier to get people to work together on some kind of task that actually fits nicely into assisting an individual outcome if it’s not going to be a group project. I think there’s also a danger of having students think that the way a task like that or a session like that might be structured that that stands in for actually knowing what design process is because I think they still have to discover — there’s a lot of self-discovery and the building of judgment involved in understanding design process or understanding the cognitive kind of dimensions (T1m2).
Furthermore, the concern was expressed by staff that the equal resourcing across design and non-design units may lead to a general decline, whereas targeting design units may be more profitable in encouraging and supporting student learning. For example:

*we should concentrate our resources on some specific things. One cheap course [unclear] expensive courses be more instrumental and so on ... you've got to be realistic. If we simply try and do everything the way we've always done it without resources the risk tendency is to produce everything still but everything with a lower quality than it used to be. So the conversation which I think we need is about being more efficient. How to be strategic in putting resources into key areas – but the key areas are always subject to debate and lessens resources into other areas (T2s²).*

The strategy described above of prioritising or cross-subsidising design units from units other than design was reported by academics interviewed in schools S3s and S2m.

Overall, academics in schools T1m and T2s took a pragmatic approach in their effectiveness of teaching with 20 students in a tutorial. The quote below sums this up well by explaining that the circumstances and constraints are evolving therefore requiring a response, but there is little time to reflect and know whether the teaching approach is effective.

*I think it's an evolving set of understandings about actually how we can do it. But it is highly pressurised, you know, that's why I'm just sort of embracing or sort of putting it in brackets around this. I'm not even sure whether it's possible to really do it properly. (T1m¹).*

The reporting of the purpose of the internal crit and the roles of student and tutor in the sample group has shown that a school’s typical approach was not only related to contact hours and tutorial size but also to the circumstances and culture of the schools. Schools S1m, S2m and T3l, through their approaches to internal crits, demonstrated a concern for students to be involved in the interactive discussion of students' works as well as develop students’ skills to articulate, evaluate and self-monitor. These opportunities appeared to be fewer at schools T1m and T2s due to the priority to engage students over the entire tutorial time in an attempt to prevent students only engaging for the short period that their work would be able to be discussed. It was also a product of the size of the tutorial group with 20 students and maintaining their engagement. As to the rationale why school S3s with similar resources to T3l and S2m was less developed in its approaches to expanding students’ critical thinking and
discussion skills was perhaps to do with the academics interviewed and their beliefs, skills or knowledge of teaching.

Another issue identified in the teaching methods theme was the different roles that teachers took according to an elective-based curriculum structure or a fully defined compulsory curriculum structure. In an elective-based curriculum structure the role of the teacher was to conceive the design project and program for approximately 14 students and teach this. The teacher could have been a full-time academic or an architectural practitioner, whereas the role of designing the project and program in the compulsory curriculum structure would have been the role of the full-time academic. The practitioners would have fulfilled tutoring roles along with other graduate architects or senior students. In the compulsory curriculum structure a full-time academic would devise and coordinate a design project for an entire year group by lecturing, managing tutorial groups and tutors, and tutoring. It was observed that schools T1m, T2s and S3s, operating under a compulsory curriculum structure, experienced difficulty in accessing a sufficient pool of “good” tutors. A common strategy was to repeat tutorials over the day while utilising the same tutors, which made it a more attractive commitment for the tutor as they did not have repeat travel to the university to deliver the tutorial. The repetition of tutorials also accommodated the lack of classroom availability (T1m and T2s). To make tutorials work and improve the economic viability at school T1m (classes of 250 to 280 students) and increase the pool of teaching staff, senior students were employed as demonstrators/tutors in the early year levels. This also relieved the coordinating academic of tutoring duties, thereby gaining another efficiency. The coordinating academic communicated to students and tutors through a weekly tutorial sheet with structured activities to ensure a parity of learning experiences across the large number of tutorial groups (n=13 to 28).

The challenge of maintaining a "good" tutor pool by schools incorporating compulsory design units for each year level (T1m, T2s and S3s) was unreported by schools offering elective design units (S1m, S2m and T3l). It is unresolved whether this trend is coincidental or if practitioners are more attracted to schools where their role involves developing the design project and program with a small group of students than conducting a tutorial with structured activities and larger tutorial class size. Perhaps other factors such as the number of hours and sessions per week, the timetabling of the tutorials with work commitments, the time taken to commute to the campus and the remuneration influence the attractiveness of tutoring students. Ostwald and Williams's (2008a, p. 100) research indicated that academics in Australasia reported that with an
upturn in the economic/construction cycle fewer practitioners were available, but no other patterns were detected.

Another distinction between the groupings of these schools (T1m, T2s and S3s; S1m, S2m and T3l) was the level of formal induction and training involved for sessional or casual tutors. In schools where compulsory design units operated with a unit coordinator, tutors were offered tutoring induction programs. These varied from voluntary and unpaid (S3s) to compulsory and paid (T1m), whereas at schools where elective design units were offered to students the tutors may have received informal mentoring by academics or have learnt through their personal experiences.

In summary, schools' relative position to the teaching methods theme was mainly guided by the schools' ability to distribute their learning and teaching resources and the flexibility of the curriculum structure according to the institutional climate. From this background, schools were then best able to respond, with most preferring to retain small-group teaching techniques (S1m, S2m, S3s and T3l) such as regular internal crits to develop critical thinking and reflection. Variations existed in how the internal crits operated with the reduction in resources. Schools T1m and T2s differed from the other schools by employing a more conventional structure of lectures and tutorials that was used across universities (T1m and T2m) due to fewer resources. Figure 4.12 illustrates the difference in teaching methods between these two groupings, although school S1m was positioned at the end of the small-group teaching spectrum to reflect their ability to maintain one-on-one tuition and internal crits weekly.

![Figure 4.12 Teaching methods according to academics interviewed in six schools](image)

In addition, the teaching methods theme revealed a number of new associations with curriculum structures, as well as the skills of the tutor and internal crit method:
• Teacher role changed according to curriculum structure (compulsory or elective). A compulsory structure equated to unit coordination and management of project design, lectures, tutorials, tutors and assessment. In an elective structure accommodating approximately 14 to 16 students, the role was more immediate.

• Teacher’s background. In a compulsory design unit it was more likely that the unit coordinator role was held by a full-time academic, whereas in the elective structure it may have included practitioners, graduates or full-time academics.

• Tutor pool. Difficulties were experienced in the lecture/tutorial approach to engage a sufficient number of tutors from practice. Strategies to ameliorate tutor shortage were timetabling repeat tutorials, making blocks of tutoring, employing senior students.

• Tutors were more likely to receive an induction and/or training where a compulsory curriculum structure applied and the institutional climate developed centralised training programs.

• Variations of the internal crit influenced by contact hours and SSRs, school culture and purpose.

4.2.6 Assessment

The assessment theme encompassed the diversity of approaches employed by studio models to summative and formative assessment of student learning and how these assessments were moderated. These terms were understood as follows. Summative assessment was understood to be the process of measuring and grading students’ work to determine their performance (Askland, Ostwald, & Williams, 2012; Biggs, 2003; Boud, 2010; Fry et al., 2009; Ramsden, 2003). In contrast, formative assessment was the practice of providing verbal and/or written feedback on development and progress of the project/problem, allowing time for trials and errors (Askland et al., 2012; Biggs, 2003; Boud, 2010; Fry et al., 2009). It also provided feedback to the academic in relation to their teaching and its effectiveness (Biggs, 2003; Ramsden, 2003). The moderation of assessments referred to the process of ensuring parity in the grading and feedback across the entire class or year level.

The influence of the assessment theme on the studio form was characterised by schools adopting two main different approaches to summative and formative assessments and the moderation process. The two approaches are referred to as the portfolio (S1m and T3l) or staged milestone approach (T1m, T2m and S3s) and what principally
distinguished them was the number of summative assessment tasks. The portfolio approach involved a single summative assessment reflecting a holistic stance that design work cannot be accurately assessed in its formation or its parts, but only at the end of the semester. This rationale was explained in the quote below:

*I don’t like the idea of giving portions of grades throughout the [studio] because you can end up with some work that looked quite good early on but the final result was truly horrendous and you don’t want to be forced into giving it a B or something, or the other way round. It seems to me architecture isn’t as always – not quite the sum of its parts in some ways. So I really resist the idea that we put a little mark for technology and a mark for environmental things and a mark for social things and just don’t think architecture is like that in the world. I don’t know it’s a productive way of teaching, so no, I don’t do that (S1m1).*

In contrast, the staged milestone approach used multiple assessment points during the semester, which are both summative and formative (see Table 4.8). This approach was consistent with the philosophy that the process as well as the final outcome should inform and be valued in the assessment of student learning (Biggs, 2003; Boud, 2010). The quote below describes how the academic as a rule of thumb ensured that the summative assessment occurred across the semester to reward the process and development and not just the final outcome.

*Another principle I try and follow is to lock up roughly the same percentage of marks as we are through the semester... So by halfway through the semester, half the marks should be allocated. In fact it lags behind a bit (T2m2).*

Other factors apart from the rationale and number of summative assessment tasks characterised the differences between the portfolio and staged milestone approach and these are shown in Table 4.9. These included the type of assessments, the use of assessment rubrics and the moderation process. The table shows that there were similarities between school S1m and T3l that formed the portfolio approach. Schools T1m, T2m and S3s also shared more similarities and formed the staged milestone approach. School S2m was grouped separately as it drew from both of the two approaches. All the studio forms held in common the critique, which was at the forefront of the assessment process irrespective of the number of summative or formative tasks. Generally, the major or sole type of assessment involved the presentation of the devised solution to a problem by using a combination of drawings, models and journals. Both the differences and characteristics of the assessment approaches are explained in the results below.
Table 4.8  Comparison of schools’ assessment theme

<table>
<thead>
<tr>
<th></th>
<th>Portfolio</th>
<th>Blend</th>
<th>Staged milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S1m</td>
<td>T3l</td>
<td>S2m</td>
</tr>
<tr>
<td>Number of assessment tasks</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Approach</td>
<td>Holistic stance</td>
<td>Stages of design &amp; process evaluated</td>
<td></td>
</tr>
<tr>
<td>Type of assessment</td>
<td>Distinction between formative &amp; summative</td>
<td>Formative &amp; summative assessment combined</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interim &amp; final crit</td>
<td>Variety includes crits, &amp; minor exercises, test, report, reflective journal, literature review, &amp; paper</td>
<td></td>
</tr>
<tr>
<td>Assessment rubric</td>
<td>Unclear</td>
<td>Year level</td>
<td>Un dear</td>
</tr>
<tr>
<td>Moderation</td>
<td>School based</td>
<td>Unit based</td>
<td></td>
</tr>
<tr>
<td>Institutional climate</td>
<td>Accommodates</td>
<td>Restricts</td>
<td></td>
</tr>
<tr>
<td>Curriculum structure</td>
<td>Elective based</td>
<td>Both</td>
<td>Compulsory based</td>
</tr>
<tr>
<td>Comparison with resource parameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorial size</td>
<td>12</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Time per student per week (mins)</td>
<td>60</td>
<td>Av. 25</td>
<td>34</td>
</tr>
</tbody>
</table>

The three schools belonging to the staged milestone approach (T1m, T2m and S3s) shared a fully defined, compulsory curriculum, meaning that all students from the one year level were taught in the same design unit. This allowed the use of lecture and tutorial delivery as all students were responding to the same project vehicle and assessment tasks. In the staged milestone approach tasks were both summative (graded) and formative (feedback) at the same time. The three schools (T1m, T2m and S3s) assessed the task according to performance descriptors that belonged to the specific task or the unit assessment rubric. The exception was school T2m that used the relevant performance descriptors as per the university template for an assessment rubric.
Increased diversity amongst the schools employing the staged milestone approach exists in the number and type of assessment tasks (Table 4.8 and Table 4.9). The number of assessment tasks employed in schools T1m, T2m and S3s varied from two to nine across a design unit, which was a significant difference when considering the assessment workload involved in a large class. The reference to two assessment tasks (T1m2) was an anomaly here as the typical design unit at school T1m involved three assessment tasks (T1m3) for a single-weighted design unit. The reason that the anomaly of two assessment tasks existed was that the design unit involved students designing in a team of 10 that was made up of different allied design disciplines,
including architecture, near the end of the undergraduate degree (T1m). In
comparison, the design units analysed from schools T2m and S3s were typically double
weighted even though the lower extent of the total number of assessment tasks, three
to nine, was comparable to school T1m with single-weighted units. On analysing the
context of the three to nine assessment tasks it was found that the higher numbers of
two and nine for schools T2m and S3s were more likely to be associated with an
undergraduate level unit than the postgraduate level. A possible explanation for this
was that the undergraduate level was where a greater variety of foundation skills and
knowledge were being developed whereas in the postgraduate levels these were
expected and not isolated in more separate assessment tasks.

The number of assessment tasks in the staged milestone approach suggested the types
of assessment tasks were more diverse than the portfolio grouping of schools. The
types included a test (T1m), report (S3s), literature review and paper (S2m), working
drawings (S3s and T2m), small exercises (T2s and S3s), reflective report (T1m) and
evidently the crit. Other variations in the assessment approaches used were in
response to the increase in SSRs, and these approaches entailed the adaptation of more
group-based assignments and shorter crit time per student or even PechaKucha in the
lecture theatre (T1m and T2s). PechaKucha refers to a quick presentation of 20 images
which the presenter talks to as it automatically changes the image every 20 seconds.
The presentation format is adopted for a final presentation of work to the entire class
that is concurrently assessed by a small panel.

The reference to test assessment (T1m) reflected an in-class examination that took
place across three tutorial sessions over three weeks. Students were required to devise
and work on their preliminary design project in class and encouraged to inspect their
peers’ progress. It was reported that the tutorials were most energised during this part
of the semester as the assessment task required work to be undertaken in the tutorial.

_I mean the word test is really just to sort of sharpen the focus a bit. But the outcome of
what we just experienced is probably the most energised in terms of working on design in
the studio for three hours over three weeks, it really was. The tutors would walk around
and discuss. I mean it wasn’t that you don’t discuss what’s going on; in fact students were
encouraged to get up and walk around and to see how other people are making their
progress (T1m)._

The design test described above could be understood to be a modification of the Beaux
Arts’ _esquisse_, where students were involved in a design task undertaken in a short
specified period of time to develop the sketch design, which was later detailed (Askland
et al., 2012). The design test was instigated at school T1m in response to an introduced institutional policy which required variation in the delivery and type of assessment to better support different student learning styles. The other assessment tasks involved a group design project that required a dance or play performance or installation in a designated outdoor space on campus, and the final task involved an individual design project that was critiqued at its completion by a panel of assessors.

The use of the report (S3s), literature review and paper (S2m) and working drawings (S3s) assessment types were generally found in the postgraduate level, in the Master of Architecture and the capstone unit of the undergraduate degree in the Bachelor of Architecture design units. The report (S3s) and the literature review and paper (S2m) assessments were similar in their objective which was to communicate in a scholarly manner the research context by which the design project was informed. These assessment tasks reflected the evolution and evidence of the distinction between undergraduate and postgraduate levels, as well as these types of assessment assisting the preparation of students for further higher education studies such as a doctorate. The working drawings assessment task (S3s and T2m) reflected the design units being in the final year of the Master of Architecture or the capstone unit in the Bachelor program. In addition, the working drawing task reflected the schools’ philosophy to integrate the instruction and resolution of the design and construction in their design units.

The employment of small exercises as a type of assessment was found in schools T2s and S3s. Small exercises referred to a technique to assess a series of small, in-class tasks, worth a nominal percentage of the overall unit grade. In school T2s these were commonly termed by the students as “2 percenters” (T2s²). It was explained that the underlying strategy was to encourage consistent work and engagement with the project and reflect the progressive work by ensuring that the percentage of marks was comparable to the weeks spent studying.

Another example of small exercises as a type of assessment was found at school S3s where there was in total nine assessment tasks over the duration of the semester in a double-weighted design unit. Six of these assessment tasks were considered to be minor exercises worth 2% to 3% (S3s¹), which left three major assessment tasks. Unlike the first example (T2s) that required the production to occur within class time, these minor assessment tasks were to be completed outside of class time and brought to class the following week to discuss, have feedback provided and be assessed. The use
of small exercises was considered beneficial by schools T2s and S3s as these were relatively quick to mark and could be done outside of class or with students in class.

The use of the reflective journal occurred in the aberrant design unit where students from multiple design disciplines were organised in teams of 10 to design and install a temporary site-specific installation (T1m²). The reflective journal comprised half of the students’ grade and the other half was the assessment of the group design. Otherwise the reflective journal on students’ design learning was not found in other units, instead portfolios of the design process and progress were required for schools S1m, S2m and T3l. Another informative note about the reflective journal being used to assess the individual’s learning from a collaborative design assignment was the percentage of the assessment task of 50%. At school T2s, which shares a number of parallels with school T1m, group assessments were limited to 30% by an institution policy.

In comparison, the schools (S1m and T3l) using the portfolio approach had limited the marking involved as only one single summative assessment task existed at the end of the design unit. These design units were typically double weighted and offered within an elective-based curriculum structure. The teaching methods used for small-group teaching regularly involved an internal crit each week, which formed part of the formative feedback process. The exception here was school S1m which had the greatest amount of average tutorial time per student at 60 minutes in the sample group. This allowed both an internal crit and one-on-one instruction each week.

In the portfolio approach, it was common practice that a formative interim crit was held in the middle of the semester, with written feedback to indicate whether progress was satisfactory or that the student was at risk of failing. Students’ work was then assessed at the end of the semester by a school-based panel of experts to ensure parity of results across the different elective studios. At school T3l the process involved students presenting at their final crit, and then they had a period of time, between a few days or a week, in which to respond to this feedback before submitting their portfolio of progressive design work accomplished during the semester. This also included the students’ final design which was summatively assessed.

Well the final crits are — there’s between three days and a week between the final crits and the portfolio. So if someone has had a disastrous final crit and gets clear advice and if it’s just a few things that they can do, they can address, like a drawing that was critical that that they didn’t do, they can do that over the weekend and put it in the folio. So you can be saved. I give my crit sheets out the day of the crit like right afterwards to give them the most time possible. I try to go on the first day so because it’s portfolio based, they have a week to put the portfolio together. You can change the hierarchies of the work. You can
minimise things and pull things up. So those who’ve been paying attention can do that within the folio of making something look better than perhaps it looked on the wall or conversely worse (T3P).

It is also suggested that when the school-based moderation process was used (S1m, S2m and T3l) the descriptors of grade standard were of a more general nature than the specific descriptors used in staged milestone assessment. This was a consequence of ensuring year level standards across multiple and diverse project vehicles. It is also related to these schools being accommodated by their institutions to satisfy the quality assurance of the process through using a school-based panel to assess and moderate. The performance standards may have been more general, however the internal crits were used to convey to the students the expected outcomes and levels through verbal demonstration.

By contrast, the staged milestone approach assessed a variety of summative assessment tasks over the semester and moderation of grades typically occurred within the design unit, as all students from that year level were involved. Specific assessment criteria were detailed with performance-level descriptors through assessment rubrics (T1m and S3s). This differed for school T2s where a generic assessment rubric designed by the university was used to reference the grade level. Another difference between school T2s and schools T1m and S3s was the school’s policy in relation to resubmitting assessment tasks that were failed. The T2s school allowed students to resubmit any assessment task that was failed before the end of semester to receive a minimum grade of 50 marks out of a 100. No other school in the sample group mentioned such a school-based policy. The rationale of this for school T2s was to ensure “honest” marking of the standard of work as students had another opportunity to resubmit for a pass.

School S2m belonged neither to the portfolio approach nor to the staged milestone approach but employed a blend of the two that aligns with the school’s curriculum structure that alternated each semester between an elective and compulsory basis. The association to the staged milestone approach applied due to the multiple assessment tasks that were both formative and summative. It also related to more than one assessment type with the inclusion of a literature review and paper to the common practice of assessing design work through critiques at different stages of development. The association between school S2m and the portfolio approach was the panel assessment held at the interim and final assessment to ensure parity amongst the year
level. The task was assessed through documented assessment criteria and general grade descriptors that existed for the different year levels.

To summarise, the main issue that characterised the assessment theme was the approach taken which was identifiable by a single or multiple summative assessment tasks and the rationale for their selection. Schools S1m and T3l required a single summative assessment at the end of the semester and provided many formative feedback opportunities to respond to in the work before its assessment. This is termed as the portfolio approach. The rationale is that the design assessment is holistic and based on the final work prepared allowing for discovery, mistakes and learning along the semester. Schools T1m, T2s and S3s employed multiple assessment tasks that were both summative and formative, and this is termed as the staged milestone approach. The rationale is to support and recognise student learning during the semester as well as the quality of the final design outcome. School S2m was a blend between the two approaches as by having multiple assessments it reflected the staged milestone approach but the assessment of the grade and moderation processes reflected the portfolio approach. Figure 4.13 demonstrates the grouping of the schools according to their assessment approach.

![Assessment approach diagram](image)

**Figure 4.13    Assessment approach according to academics interviewed in six schools**

The grouping of schools was achieved by best fit according to the portfolio or staged milestone approach but this did not mean that the schools grouped together were entirely the same and variations existed. For instance the grouping of T1m, S3s and T2s had a number of variations that were specific to their school or institutional policy. They included an institutional policy requiring different assessment delivery in a unit (T1m), no group assessment being greater than 30% of a unit (T2s) and the numerical percentage of the grade for each assessment task being provided at the return of the
task (S3s). The policy within school T2s was the resubmission of failing work for a pass and the school culture of small exercises known as “2 percenters” to engage students in their learning (T2s and S3s).

4.2.7 Possible major influences from Stage 2 results

To be able to answer RQ2, the factors leading to studio diversity, and RQ3, the implications that flow from such diversity (RQ3), first required the issues to be identified across the schools using Biggs’s (2003) framework. Secondly it was necessary to capture and distill the diversity found in studio forms in order to understand what implications may flow from this. The results reported a breadth and frequency of issues (Table 4.10) in Stage 2 that were also found in Stage 1. Table 4.10 suggests that the major influences on the studio models were the increased standardisation of learning and teaching policies impacting on schools (n=7), as well as the majority of schools reporting reduction in resources levels (staff and facilities) while student enrolments increase (n=6), essentially the institutional climate. Other issues influencing the diversity of studio models were:

- need for most schools to prioritise the internal crit as the central group teaching method,
- negative changes occurring in curriculum structure (imposed or employed) such as modulisation and service teaching,
- utilisation of space and its influence on teaching methods to encourage peer learning and engagement, and
- responding to lower student engagement/attendance levels.

The remainder of the issues were thought to be more minor and related to one or a few specific themes, such as:

- Academics attempting to balance workload demand of teaching and research outputs,
- Requirements or resourcing to support a positive studio culture,
- Negative implications for the use of studio spaces due to computer laboratories and affordability/flexibility of computers to work elsewhere,
- Need to manipulate the timetabling of classes due to limitations in tutor pool and teaching spaces, and
- Common response of academics and tutors to over-teach the allocated contact hours to achieve some form of personalised instruction.
### Table 4.10 Issues influencing studio models in six Australasian schools

<table>
<thead>
<tr>
<th>Issues</th>
<th>Stage 2</th>
<th>Stage 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased standardisation of learning &amp; teaching policies impacting schools</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Majority of schools experiencing reduction in resourcing levels while student enrolments increase</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Majority of schools prioritising the internal crit as central group teaching method. Internal crit method also evolving in practice due to less resourcing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Negative changes occurring in curriculum structures</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Utilisation of space and its influence on teaching methods</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Responding to lower student engagement levels</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Academics attempting to balance workload demand of teaching and research outputs</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Requirements or resourcing to support a positive studio culture</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Negative implications for the use of studio spaces due to computer laboratories and affordability/flexibility of computers to work elsewhere</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Need to manipulate the timetabling of classes due to limitations in tutor pool and teaching spaces</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Common response to over-teach the allocated contact hours to achieve some form of personalised instruction</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To capture where the similarities and differences occurred across the academics interviewed from the six schools, the overall results were combined in a radar chart (see Figure 4.14). Each axis of the radar chart represented Biggs’s framework (4.2.1 Philosophical position of learning and teaching; 4.2.2 Institutional climate; 4.2.3 Curriculum; 4.2.4 Environment; 4.2.5 Teaching methods; and 4.2.6 Assessment). Figure 4.14 illustrates a close alignment between the relative positions of schools T1m and T2s and, hence, the collapsing of the two schools to the dark blue line. The closeness of the two schools suggests a type of studio model that was strongly influenced by universities on resourcing of units, curriculum structure, lecture/tutorial approach and
staged assessment. Schools T1m and T2s are shown as one line on the chart; this is only for legibility as minor variations existed. The other studio forms are less visible from the radar chart, although school S1m is located at the centre of the radar chart, meaning that it was the most diverse from the studio model of T1m and T2s, suggesting a second studio model, namely a model where the school approach to the studio form was influenced by discipline traditions as the institution exerted minimal oversight and staff resourcing had not been impacted like the other five schools.

Figure 4.14  Stage 2 studio trends using Biggs’s (2003) framework for constructive alignment

Figure 4.15 illustrates the difference between the University- and Discipline-influenced schools. School S3s deviated the most from other five schools, however the similarities with T1m and T2s in curriculum structure with a lecture/tutorial approach and the employment of staged milestone assessment suggest a University influence. The main difference was the accessibility to studio facilities and the small tutorial class size at school S3s, hence it was reasoned that it was University hybrid. Looking at schools S1m, S2m and T3l through a Discipline-influenced lens there were also more similarities in the elective curriculum structure, small-group teaching techniques and the portfolio approach to assessment. As school T3l differed from S1m and S2m in the environment theme by using teaching spaces, it was thought logical to assign T3l as a Discipline hybrid. There is also a consistency then between the naming of studio models.
The rationale for four studio models can be further understood by examining the contents of Table 4.11. The table illustrates the implications from having diversity in studio models that were identified from the analysis of the Stage 2 themes. The institutional climate theme is shown in the naming of the studio models. As stated above, the University- and Discipline-influenced models reflected the curriculum structure, teaching approach and assessment approach. The Hybrid models represented the difference in the utilisation of space of the University or Discipline models. The difference between models was less obvious when considering:

- Average tutorial time per student per week was at least 27 minutes, except for the 9 to 12 minutes in the University model;
- Concentration of instruction method to internal crits where the University model relied on event-based tutorials. The internal crit method did vary across the models and are represented here as the critic, conductor and facilitator. These are discussed in Chapter 5;
- Over-teaching; and
- Cross subsidisation of design units by making non-design units principally taught by lectures

The remaining implications supported the difference between University and Discipline models:
The role of the academic was to manage and coordinate large classes, repeat tutorials were often necessary and the preparation of lectures or sole responsibility for small-group teaching.

Tutor/practitioner attraction refers to the difficulty experienced to engage a sufficient pool of tutors, thereby requiring the timetable to be manipulated and the use of senior students, whereas the Discipline models did not raise these problems.

These results are unpacked in Chapter 5 with the discussion of the studio models in relation to factors influencing diversity, the implications from having diversity and the development of a studio typology.

<table>
<thead>
<tr>
<th>Table 4.11</th>
<th>Implications showing diversity in studio models</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum structure</strong></td>
<td></td>
</tr>
<tr>
<td>University Hybrid</td>
<td>Discipline Hybrid</td>
</tr>
<tr>
<td>Compulsory</td>
<td></td>
</tr>
<tr>
<td>Average tutorial time per student per week</td>
<td>9 to 12 minutes</td>
</tr>
<tr>
<td>Concentration of instruction method</td>
<td>Event based tutorials</td>
</tr>
<tr>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Tutor/Practitioner attraction</td>
<td>Management of large class &amp; repeat tutorials</td>
</tr>
<tr>
<td>The role of academic</td>
<td>Lectures</td>
</tr>
<tr>
<td>Over-teaching</td>
<td>Less</td>
</tr>
<tr>
<td>Cross-subjectisation</td>
<td></td>
</tr>
<tr>
<td>Utilisation of space</td>
<td>Timetabled design classrooms</td>
</tr>
<tr>
<td>Assessment</td>
<td>Multiple/ Staged milestone assessment</td>
</tr>
<tr>
<td>Underlying philosophy</td>
<td>Pedagogic</td>
</tr>
</tbody>
</table>

4.2.8 The term studio

To achieve a more specific response to RQ1 in how the term studio is conceptualised, participants from the purposeful sample were asked to interpret the results from the Australasian data (section 4.1), where the majority of academics (31 of 43, 72%) identified that their studio held plural meanings, formed by teaching methods (35 of
43, 81%), curriculum (20 of 43, 47%) or physical place (19 of 43, 44%). More than half of the purposeful sample (six of 10) interpreted that the term studio was ubiquitous and interchangeable in their schools (see Figure 4.16) even when studio facilities were largely absent or discipline-based teaching methods such as one-on-one instruction and the time for internal crits were more restricted in employment. Examples of such responses are included below where both academics and students can understand “simultaneously” its usage and meaning.

Yes, I think the design studio is a terminology that’s inside a terminology — mainly in design disciplines, ... — and I think people understand it as simultaneously a teaching unit, a methodology of teaching — or pedagogy — and a space. I don’t think anyone’s stupid enough to think that they’re different things. I think everyone thinks of it in the same way. So, you might say, I’ll see you in studio, and you mean I will see you in the group, as well as I’ll see you in the room, as well as I’ll see you in the syllabus. Do you know what I mean? (T3l1).

The studio for me is the space. You know, what’s your studio like? I immediately think they’re talking about the design studio [design unit]. So to me that term is synonymous (T1m1).

Figure 4.16 Interpretations of the term "studio" from purposeful sample group

Another quote demonstrates that the term studio has changed and expanded for the academic due to the loss of studio facilities in their school and instead refers to the experiences occurring in the classroom space. The term studio was also understood as the classroom space and, furthermore, there is a reference that the potential exists for virtual space.

I think whereas conventionally I would have thought of the studio as being a physical place — in the school I attended and in this school if you go back in time, a student had a desk in the studio. That was their home; they were expected to be there. It’s not like that
anymore. Now I see the studio as more of an experience than a physical place. It can be an experience that involves a physical space, so you meet in the studio, but you sort of hot-desk in the studio and somebody else is in there next. But it could equally be a virtual place, so you could have a studio taking place where everything is digital and nothing is physical (T2s2).

Only a few participants (two of 10) commented on the Stage 1 results that the lower response to physical place was a reflection of traditional studio facilities being absent from the school. They explained that in their schools (T2s1 and T1m2) the studio only represented teaching methods, as their design units (curriculum) operated in classroom-like spaces and not studio facilities (physical places). One participant perceived that the use of the term studio at their school would be misleading as it was no longer available, except in the teaching methods as the processes of thinking, making and reflecting still occurred.

We haven't even had anything called a studio until 2009. ... you wouldn't want to see the word studio in the program structure to think that studio-like activities were happening there because you would be sadly disappointed. Until 2009 you would not have seen that word but clearly ours is a place of thinking, making, reflecting, making, reflecting, making, reflecting ... (T2s1).

The other participant acknowledged their specific use of the term studio as a teaching method but perceived that colleagues would most likely treat the term interchangeably and refer to their classroom spaces as the studio.

People would treat it interchangeably here. I think I've become more conscious of not doing that though and just calling them design units rather than studio units. Yeah and I think I've been in that situation for a while. Yeah there are people that hang onto it. We don't really have studios — well we do, I mean we have teaching. I don't know, it's a funny thing. Maybe I think about it more than other people (T1m2).

For these two participants (T2s1 and T1m2) the term studio could only represent teaching methods, despite its widespread use and meaning.

Another two participants (S1m and T3l2) were perplexed by the request to interpret the Australasian data (section 4.1) because they could not understand how or why the term studio had to be distinguished or identified in parts. From their perspective, the studio was holistic and encompassed all these things but could not be separated. In accordance with the vein of their responses these academics' positions were represented as "holistic", neither multiple or single meaning, as this approach was inconceivable to them (Figure 4.16).
Another question related to the use of the term studio, which had led Ostwald and Williams (2008a, p. 18) to speculate whether the loss of studio facilities increased the use of the term studio in curricula titles. Evidence of the use of the term studio in curricula titles and the accessibility to sufficient studio facilities for the majority of the student population is shown in Table 4.12 for both 2008 and more recently 2015. There was no strong association suggesting a link. The schools included in Table 4.12 are those involved in the Australasian review (n=19). There was limited change between schools with studio facilities and the use of studio in the curricula titles from the time of data collection (2007 to 2011) to the conclusion of the study in 2015. More than half of schools with studio facilities also used studio in their curricula titles. There was an increased use of the studio title in schools operating with classroom spaces, but it also indicated that there were still schools that did not refer to the term studio. Therefore, the use of the term studio in the curricula titles is likely to be associated with but not dependent on the absence or accessibility to studio facilities in the school. This provides further support that the term studio is used in a more haphazard or casual manner, as some schools only referred to it only in their bachelor or masters degrees.

Table 4.12 Use of the term studio in curricula titles

<table>
<thead>
<tr>
<th>Studio in curricula titles:</th>
<th>2008</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>Master</td>
<td>Bachelor</td>
</tr>
<tr>
<td>Schools* with:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studio facilities (n=8)</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Classrooms (n=11)</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

* Schools excludes Bond University, Griffith University and Monash University

So in response to RQ1, how is the term studio conceptualised within architectural education in the Australasian context, these results suggest that the term studio can be understood as and refers to the teaching methods, the curriculum and/or the physical place, but it may also be understood holistically or as a separate theme. Its application was commonplace within schools and unrestricted by the variations that have evolved
from the traditions of studio facilities, desk crits and crits as well as its prominent position in the curriculum. Therefore the term studio and its usage suggest that a cultural and/or professional bias may reside within architectural education in Australasia. The problem remains that when academics were asked what form does the studio take in your school as a part of the data collected by Ostwald & Williams (2007a & b), distinctions were clearly made but these do not appear to be often articulated in architectural education or the profession.

4.3 Chapter summary

This chapter has reported the results from Stage 1 (section 4.1) and Stage 2 (section 4.2) in response to the research questions: how is the term studio conceptualised (RQ1), the factors leading to studio diversity (RQ2), the implications that flow from such diversity (RQ3), and what the studio lens reveals about the conditions of studio in Australasian universities (RQ4). In relation to RQ1 it found that the majority of respondents in Australia (81%) identified that their studio form centred on the teaching methods, as studio facilities were no longer accessible or provided to the student cohort. In contrast, studio facilities were expected facilities in the New Zealand schools, and less likely in Australian schools. There were no clear patterns as to what the term studio referred to, as its use varied amongst schools and even within programs. In general, the analysis of the use of the term studio suggests that there was close cultural attachment and identification occurring for some academics to signify design education and practice in architecture.

To identify the factors that have led to the diversity of studio models (RQ2) and the resulting implications from such diversity (RQ3), the following issues were found to influence the diversity of studio models (Table 4.11). The major issue influencing diversity (RQ2) was the institutional climate as it impacted on the resources afforded, curriculum structure and what effect the resulting SSR and contact hours had on teaching methods, student engagement and the use of space. Studio models were identified from the analysis using Biggs's (2003) framework and the potential development of a studio typology (Table 4.10 & Figure 4.15). A typology of studio models is discussed in Chapter 5, facilitating the discussion of implications that flow from having such diversity in studio models.

This concludes the reporting of the results. The next chapter will draw together the factors that are impacting schools and how their responses to these factors have
shaped the studio form and potentially the conceptualisation of the term studio. It will also consider the approaches taken to teach design and the different forms that the studio takes, the objective being to understand the implications that having such diversity in programs has had. Finally, it will cross-reference these results with the findings of other research and draw together the argument of what the studio lens reveals about the conditions of studio in Australasian universities (RQ4).
5 Discussion

To formulate the response to the research questions (RQ1–4) concerning the studio concept, factors leading to diversity of studio, implications of such diversity and the conditions of studio, this chapter discusses the results reported in the previous chapter. The results indicated how the studio concept has become increasingly ambiguous, as suggested by the diversification of studio models in Australasia. A number of issues were identified in Chapter 4, as the academics who were interviewed across the six schools had revealed not only the diversity of studio models, but also the factors influencing studio models (Table 4.10). An analysis of these results was conducted by using Biggs’s (2003) framework for constructive alignment. Figure 5.1 outlines the structure of the discussion presented in this chapter.

Figure 5.1 Diagram explaining the structure of Chapter 5

The discussion of the results is organised in four parts (see Figure 5.1) that are aligned with specific research questions (RQs). The chapter begins by unpacking the factors identified as possibly impacting on studio (RQ2). School responses to these factors form the second part, which includes discussion of a typology of studio models and the
implications from having such diversity (RQ3). The third part considers the use of the term studio (RQ1) while taking into account the various studio forms. The chapter concludes with the discussion of RQ4 and what the studio lens has revealed about the studio conditions in Australasian universities. During the discussion of the results, relevant links are made and considered with the literature presented.

5.1 Factors that were impacting studios

In this section, the factors impacting studios are discussed by considering the issues that most influenced studio models (see Chapter 4, Table 4.10). These issues were drawn together from the analysis of Stage 1 and Stage 2 results. Most of the issues were based on the availability of physical and human resources, the flexibility of the university in accommodating different learning and teaching approaches, and how to engage students in their learning. Therefore the institutional climate, as defined by Biggs (2003), was considered to be an overarching factor that may have been impacting the schools and contributing to their studio forms. There are three factors within institutional climate:

- Centralised systems
- Discipline-based philosophy
- Student disengagement and methods used to engage students

These factors are discussed below, followed by a consideration of the school responses to the factors in section 5.2, School responses to factors.

5.1.1 Centralised systems

The institutional climate experienced by academics interviewed in the six schools during the period of 2007 to 2011 reflected the increased adoption of centralised systems and business-like management in response to government policies of massification and global competitiveness (see Chapter 1, section 1.2.3). In essence, government reforms of higher education led to a funding decrease in tertiary education due to the expansion of government-supported places for students and the new ability for institutions to increase tuition fees and accommodate full-fee paying students such as international students. These shifts towards a more deregulated market required the universities to compete globally to attract students, academics and funding, with the result that resources became stretched as student enrolments expanded. Hence, these reforms have led to different implications for schools of architecture in Australasia and
the diversity of studio models present in the schools. The increase in standardisation or control of learning and teaching policies and procedures was suggested in the curriculum structures, teaching methods, timetable, assessment, and the utilisation of space. These are discussed in section 5.2, School responses to factors, in which the studio models and implications from having such diversity are considered.

5.1.2 Discipline-based philosophy

As a result of centralised systems or the standardisation of learning and teaching policies and procedures, only a few schools (S1m, S2m, T3l) may have been less restricted and able to incorporate a discipline-based philosophy whereas other schools (T1m & T2s) appeared to respond to the conditions, pragmatically and according to university conventions. Results from the data discussed in section 4.2.1, Philosophical position to learning and teaching and as shown in Figure 4.5 illustrated the relative position of academics interviewed from the six schools according to architecture practice and education through to concepts of learning and teaching. Academics from Australian schools populated the two ends of the continuum and the New Zealand schools were situated in the middle, which is most likely reflective of greater levels of resourcing in New Zealand than in Australia. In general, the relative position of the Australian schools represents the resolve and the part success of schools T3l and S3s to maintain discipline-based practices by ensuring that design units were cross subsidised by non-design units and by over-teaching the allocated contact hours. For schools T3l and S3s there was no other way to learn and teach design than through established discipline-based methods. The other pairing of Australian schools, T1m and T2s, had adopted the learning and teaching conventions in their institution that were partly strategic and partly due to engagement with learning theories as school T2s had relatively similar resources to schools T3l and S3s at the discipline end.

The underlying philosophy could be understood and explained by conceptions of teaching and signature pedagogies in the profession (Budge, Clarke, & del la Harpe, 2007; Devlin, 2006; Kane, Sandretto, & Heath, 2002; Kember, 1998; Shulman, 2005). Figure 4.5 aligns with Kember’s (1998) model for understanding teachers’ conceptions of teaching, a five-scale continuum that spans from a teacher centred/content orientation to a student centred/learning orientation with transition stages in between (Kember, 1998). The architectural philosophy was similar to teacher centred (content of knowing) and the learning concepts philosophy was similar to student centred (facilitating conceptual change). On the other hand, Shulman (2005) distinguished
between discipline content knowledge (architecture philosophy) and pedagogical centre knowledge (learning concepts philosophy). However, others (Devlin, 2006; Kane, Sandretto & Heath, 2002;) cautioned that teachers’ “espoused theories of action” do not always relate to teachers’ “theories in use”. Furthermore that the generalised view of teacher centred as being negative to student learning and student centred positive to student learning was unhelpful. Similar conflicts were in the architectural studio literature (Beinart, 1981a; de la Harpe & Peterson, 2008; Taylor, 2009; Webster, 2004). Examining the underlying philosophical position of the six schools was important as it may be associated with their studio responses to the curriculum, environment, teaching methods and assessment themes.

5.1.3 Student disengagement and methods used to engage students

The other factor impacting on schools and the studio forms was student disengagement/non-attendance and the methods to engage students. Academics reported that their teaching methods had changed in response to perceived student disengagement (T1m, T2s and S3s). While schools S1m, S2m and T3l did not perceive that students were disengaged, these schools suggested that students may engage more due to selecting their design units and the small-group teaching environment than a fully defined design curriculum and lecture/tutorial approach. Usher (2009) and Hockings et al. (2008) indicate that, for students, some pedagogic approaches are more engaging than other pedagogic approaches, particularly when there is a more diverse student cohort due to massification in higher education (see Chapter 1, section 1.2.2). This may be the case here but another possible explanation for improved student engagement in schools S1m, S2m and T3l was the design of the unit. What is suggested by the design of the unit is the use of a main or single assessment task, meaning that students are more likely to be dependent on their teacher to learn how to pass or excel in the unit, by attending and being engaged in the unit classes. This approach can either be positive or negative in the climate created for learning design as the study of Bachman and Bachman (2006) found students in an American architecture school were most motivated by the fear of failure, inhibiting deep learning. Many studies (Webster, 2004, 2007, 2008; Salama, 2015; Ochsner, 2000; Dutton, 1991; Anthony, 1991) have questioned the efficacy of design instruction and assessment culture which relies on constructive critique to encourage student learning.

Finally, the problem of student disengagement in specific schools may also reflect students’ self-selecting schools based on reputation and the culture of the school. It is
likely that a combination of all these factors contributes to perceptions of student engagement in the sample group and the resulting studio form.

It appeared from the data in this study that the professional accreditation process (ANZ_APAP, 2013) may have had minimal influence on the studio concept and its form, however, the process impacts on architecture schools' ability to offer an accredited program (Chapter 4, sections 4.1, 4.2.3, 4.2.4 and 4.2.6). To achieve accreditation requires evidence of relevant competencies standards (AACA, 2008; AACA, 2015) being met and the “necessary physical and human resources to deliver the program and achieve required outcomes” over a period of five full-time years (ANZ_APAP, 2013, pp. 10, 3). The necessary resources are relatively open, with few explicit descriptions in the ANZ_APAP document (2013) and AIA policies (AIA, 2009 & 2008a), thus, the interpretation is largely informed by student work meeting the competencies standards rather than having the resources (AACA, 2008; AACA, 2015). The competency standards have been recently revised to clarify the necessary outcomes, but this revision does not relate to physical or human resources.

Furthermore, the reference in the AIA policy (AIA, 2009, p. 2) to a school SSR benchmark of 1:17 that equates to “equivalent full-time academic staff: equivalent full-time student” (AIA, 2009, p. 2) may be difficult to appraise. Ostwald and Williams (2008a) established that the average SSR in Australian schools was 1:24 compared to New Zealand’s 1:17 in 2006, but this did not include the large proportion of sessional staff teaching (Ostwald & Williams, 2008a, p. 114). The results from Stage 1 and Stage 2 indicated that design units were operating across a range of 1:10 to 1:25 (see sections 4.1.3 and 4.2.2), which means a number of schools were operating above 1:17. However, the SSR alone does not indicate the resourcing or conditions for students as it is also related to the number of contact hours. What these data have shown is that all of the 18 schools studied in 2007 have maintained accreditation over the data collection period (2007–2011) in this study and to the present day. This indicates new precedents were being set for “necessary physical and human resources” and these can be less than the intent of the policies and procedures of the profession (AIA, 2009; AIA, 2008a; ANZ_APAP, 2013). Figure 4.6 showed the extent of resource difference for a typical design unit in Stage 2 results. This does not account for the practice by some schools to cross-subsidise their design units by taking resources from non-design units (and the potential repercussions). The proportion of design subject area in the curriculum, for the two schools, does not explain the extent of difference (Ostwald & Williams, 2008a, p. 131).
In relation to the necessary physical resources as outlined by the policies and procedures of the profession (AIA, 2009; AIA, 2008a; ANZ_APAP, 2013) the following apply:

Students must have access to adequate space(s) suitable for the delivery of architectural design. Information technology should be integrated with studio spaces (AIA, 2009, p. 2).

The reference to “adequate space(s)” and “studio spaces” are also not clearly defined or further explained in the ANZ_APAP document (2013, p. 11). The ANZ_APAP document describes the studio facilities as “appropriate studio facilities to the support the program” and general facilities include “lecture theatres, tutorial rooms and seminar rooms” (ANZ_APAP, 2013, p. 11). The ANZ_APAP document also makes various references to the need to observe “studio work in progress”, suggests holding informal meetings of staff and students in the “studio” and that the studio is also included as part of the facilities inspection (ANZ_APAP, 2013, p. 21), even though the studio space and its relationship to the type of learning area is largely undefined. The schools from Stage 2 (section 4.2.4) not only demonstrated the principal use of timetabled tutorial rooms that were not that different to conventional tutorial rooms, but also included pin-up boards and mobile furniture in schools T1m, T2m and T3l and the accessibility to studio facilities and general facilities in schools S1m, S2m and S3s (Figure 4.11). Overall it may be that since these schools had maintained accreditation, the absence of studio facilities from schools was still considered adequate to the delivery of design education by the accrediting body.

These findings suggest that the phrase “necessary physical and human resources” is flexible and allows for different approaches to be fostered as long as the competencies standards are met, as evidenced by the continued accreditation of the schools in the purposeful sample group. The extent of difference is likely to be further tested with the first fully online architectural program by Curtin University (2015) in partnership with Open Universities Australia that is pending accreditation. If accreditation is achieved through the recognition of competencies standards being met, the question remains for the panel to determine the necessity or description of physical resources/facilities in their policies and procedures. This statement by no means judges the type of resources and facilities to deliver the program as being unacceptable, however it does not consistently align with current intent and expectations of the profession.
In conclusion it is proposed that the *institutional climate* may be the most significant influence on the diversity of studio models in Australasia. The common consequences are the restriction of resources and increased student enrolments, with some institutions centralising the learning and teaching approach and management of resources. Studio models are formed within this context and are tempered by the philosophy of the school approach to learning and teaching to engage students with resources available. The accreditation process appears to have had limited influence on the studio models as the main focus of accreditation is on the national competencies standards being met and the necessary physical and human resources appear to be flexible.

### 5.2 School responses to factors

This section contains the discussion of how schools may have responded to the influence of *institutional climate* factors that contributed to the diversity of studio models. A typology of studio models has been developed to capture and convey the diversity suggested in the schools. The typology forms the first part of this section and the second part discusses the implications of school responses by reflecting on the major issues impacting the studio, as identified in Chapter 4. The section closes by articulating the potential implications in response to having such diversity in studio models.

#### 5.2.1 A typology of studio models

Four studio models were developed to represent the maximum variation or greatest diversity as interpreted from the results (Table 5.1) and in the process formed a typology of studio models. Stage 1 identified the scope of studio variations occurring from a comprehensive survey of Australasian academics in 2007 (Ostwald & Williams, 2007a & b) and school profile data (AIA, 2008b). The results from Stage 1 supported the identification of a purposeful sample group of 10 academics from six schools. The six schools were considered to encompass the diversity found in resourcing, learning and teaching methods, and the spaces forming the studio. In addition the selection of the schools came from different geographical location and/or size of the school. The studio at each school was understood by interviewing the program head and/or the design studio leader about a recent design unit taught by them.

The names given to studio models originated from the overarching influence the *institutional climate* may have had on schools and its contribution to their studio forms.
Studios formed in response to centralised university structure or accommodated discipline-based practices, hence the references to University or Discipline models. The names given to the studio models were explained earlier (section 4.2.7), including the association between curriculum structure, teaching approach and assessment for University and Discipline models. In addition, the University hybrid and Discipline hybrid models were developed to capture differences in the utilisation of spaces, and within teaching method/philosophy and resourcing.

Table 5.1 A typology of architectural studio models in use in Australasia (2007–2011)

<table>
<thead>
<tr>
<th>University</th>
<th>University Hybrid</th>
<th>Discipline Hybrid</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory design curriculum</td>
<td>Compulsory design curriculum</td>
<td>Elective design curriculum</td>
<td>Elective design curriculum</td>
</tr>
<tr>
<td>Limited staff resourcing</td>
<td>School cross-subsidised design units</td>
<td>School cross-subsidised design units</td>
<td>School cross-subsidised design units</td>
</tr>
<tr>
<td>(20 students per tutorial)</td>
<td>(10-13 students per tutorial)</td>
<td>(12-14 students per tutorial)</td>
<td>(12-14 students per tutorial)</td>
</tr>
<tr>
<td>Lecture/tutorial approach</td>
<td>Lecture/tutorial approach</td>
<td>Small group teaching</td>
<td>Small group teaching</td>
</tr>
<tr>
<td>Event based tutorials</td>
<td>Internal crits (6 contact hours)</td>
<td>Internal crits (conducted)</td>
<td>Internal crits (facilitated) &amp; personalised tutoring</td>
</tr>
<tr>
<td>(3-4 contact hours)</td>
<td>Multiple/Staged milestone assessment</td>
<td>(6 contact hours)</td>
<td>(6-12 contact hours)</td>
</tr>
<tr>
<td>Multiple/Staged milestone assessment</td>
<td>Specialists studio places</td>
<td>Final portfolio assessment</td>
<td>Final portfolio assessment</td>
</tr>
<tr>
<td>Centrally timetabled design classrooms</td>
<td>Discipline philosophy</td>
<td>Timetabled design classrooms</td>
<td>Specialised studio places</td>
</tr>
<tr>
<td>L &amp; T philosophy</td>
<td></td>
<td></td>
<td>Combination</td>
</tr>
</tbody>
</table>

The four studio models of University, University hybrid, Discipline hybrid and Discipline models reflect one interpretation to capture the diversity of studio models over the 2007–2011 period. In addition a typology is proposed to articulate and compare different studio models in research and debate. The characteristics of each studio model are described and summarised in Table 5.1. These characteristics are adapted from Biggs's (2003) framework for constructive alignment within the studio context of architectural education. The characteristics include the school approach to: curriculum structure, resources (and size of a "tutorial" class), teaching, main instruction method (and contact hours), assessment, spaces for learning and teaching, and philosophical position to learning and teaching, to identify the studio model. These characteristics are intended to be sufficiently broad to allow the typology to be employed in disciplines other than architecture or in different regions than Australasia. It is also presents a basis from which to adapt for future developments or changes.
5.2.1.1 University model

The University model (Table 5.1) typifies the institutional policies determining resources and facilities based on the lecture/tutorial approach and a fully defined and compulsory curriculum structure. Nominally the resources permit tutorials of three to four contact hours per week and an SSR of 1:20 in a timetabled design classroom. The classroom is a little larger than a conventional university tutorial room, fitted out with pin-up board on the walls and mobile furniture. Design classrooms are often adjacent to each other and include mobile walls or large sliding doors to connect between spaces, thereby allowing greater cross-over between tutorial groups or to make an exhibition space. Greater economies may be achieved with a fully defined compulsory curriculum structure, as all students in the same year level are required to take the same design unit. The unit coordinator devises the learning and teaching program for a large class, including the management of multiple tutorials and tutors. Tutorials are designed to be event based and often involve the formation of smaller groups where in-class tasks are organised to scaffold student learning and skill development. Central learning and teaching policies have ensured that detailed unit outlines and assessments are made available online and that multiple assessment tasks are used to indicate student progress and feedback. The University model (schools T1m and T2m) was identified in the Australian context and found in schools belonging to the Australian Technology network and the Group of Eight, which suggests its likeliness to be found in other university groupings.

5.2.1.2 University hybrid model

The University hybrid model (Table 5.1) shares many similarities with the University model but with the difference being the way that resources are managed, meaning the school cross-subsidised its design units by making its non-design units more cost effective with the principle use of lectures and minimal, if at all, tutorials. The outcome was that undergraduate design units operated with six contact hours per week and an SSR of 1:11. The same conditions existed in postgraduate design units, however this was a result of academics and tutors teaching over allocated times, as the school reduced their resources because students were understood to require less tuition and be more self-directed. Tutorials were primarily taught through internal crits using the critic method (see Table 5.2) where the role of the tutor is significant in providing feedback on the student work presented. Another distinction from the University model was the availability of studio facilities that had been argued successfully by the school
and which were based on reputation and growth in student enrolments. The University hybrid model (school S3s) was identified in an Australian context.

5.2.1.3 Discipline model

The Discipline model (Table 5.1) indicates an institutional climate where resources are satisfactory or adequate to employ small-group teaching in studio facilities. An elective-based curriculum structure allows students to select a design unit where the entire class is typically 14 students or fewer. The design leader can either be an academic or external practitioner and they devise the project vehicle, and teach by employing internal crits (facilitator method – see Table 5.2) and personalised tutoring over six or 12 contact hours per week. Depending on the philosophy of the school, freedom may be offered in relation to single or multiple assessment tasks, but a school panel is required at interim and final crits to moderate the work between different project vehicles and year levels. The elective curriculum structure allows for multiple year levels to be taught in the same design unit. The Discipline model (schools S1m and S2m) in the purposeful sample group was identified in a New Zealand context, which suggests the likeliness of its being found in Australia was low as New Zealand schools were in general better resourced.

5.2.1.4 Discipline hybrid model

The Discipline hybrid model (Table 5.1) shares many similarities with the Discipline model, the greatest difference being the absence of studio facilities. The principal teaching method was internal crits employing a conductor method (Table 5.2) to orchestrate students’ discussion and judgment of pinned-up work over six contact hours per week. The students had to be more fully engaged in the internal crits as not all work pinned up was discussed but key strategies and approaches were, requiring the student to interpret accordingly to their own work. The Discipline hybrid model (school T3l) was located in the Australian context.

In summary, this section has discussed the diversity of the studio models, based on the period from 2007 to 2011, and the implications resulting from the institutional climate on schools’ studio form, in particular those associated with the University model that appeared to be closest to resembling a liberal arts program. The hybrid models suggest that the access to studio facilities was not necessarily linked to the use of established discipline teaching methods/structures and vice versa. The Discipline model may be the closest association to a “traditional” approach. It existed in one New Zealand school
(S1m) where their resourcing conditions had remained and there had been little or no change to teaching methods.

5.2.2 Implications from having diversity in studio models

This section draws together the implications that may be associated with the diversity of studio models in Australasia during the period 2007 to 2011. It both draws together the discussion of the implications identified above with the most influencing issues on studio models (Table 4.10). The discussion is organised under common themes of teaching methods, curriculum, utilisation of space, and assessment.

5.2.2.1 Teaching methods

Teaching methods was commonly understood by academics to be a part of the studio concept and its form. The implications associated with teaching methods that may be due to institutional climate factors was the divide between two teaching approaches and the concentration on one instruction method. The central instruction methods reported by academics were the event-based tutorial and internal crit method. However, despite the similarities in the internal crit method they varied significantly, but this variation may occur more as a result of academics’ underlying philosophy of learning and teaching, as the resources were similar.

The studio models (section 5.2.1) were evenly divided into a lecture/tutorial approach or a small-group teaching approach. Most models (Discipline, Discipline hybrid and University hybrid) had an approximately 30-minute tutorial per student per week, and the University model was the exception with 9 to 12 minutes. With approximately 30 minutes per student, schools generally employed an internal crit over any other method, whereas 9 to 12 minutes was associated with an event-based tutorial. These are discussed below to illustrate the differences that may be occurring due to the academics’ underlying philosophy to learning and teaching and its implications for student learning.

First the various forms of the internal crit are discussed and these have been labelled in this study as the critic, the conductor and the facilitator to reflect the suggested input of the tutor and student roles. The critic method relies on a large contribution by the tutor and the input of the student is negligible. The incidence of involvement between the tutor and the student increases and may balance in the conductor method. The facilitator method attempts to build up student input and confidence so that they eventually lead the internal crit and the tutor has little input. Where the facilitator
method was employed, the school alternated with more personalised tutorials (one-on-one or one-on-three, dependent on resources) in the next session. Table 5.2 provides descriptions of these internal crit methods.

Table 5.2  Descriptions of various internal crit methods

<table>
<thead>
<tr>
<th>Internal crit methods</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Critic**            | • Tutor discusses and critiques each work after it is presented by the “author” to the tutorial group of 11 students.  
• Students participate by presenting their work, actively listening to others and indicating their agreement with questions posed by the tutor by the sign of a raised hand.  
• All work discussed in a “pyramid” format, the first work may receive the greatest period of critique and discussion, and the length of time shortens for subsequent works as common topics have already been covered. |
| **Conductor**         | • Tutor choreographs the student discussion of best examples of defined criteria as “voted” by students’ placing a sticky note on the works pinned up (works on the wall include the progressive design work of all students).  
• Intent is to engage greater student involvement as students judge best examples and become more familiar with expectations and assessment standards. Not all work is discussed, requiring students to engage/interpret how these may relate to own work.  
• Develops discipline language and reflecting on their judgment, design decisions and design decision-making processes. |
| **Facilitator**       | • Each student to present their work, with the presenter choosing two peers to make readings of their work (“reading” refers to a peer making a personal reading of the work akin to interpreting the work).  
• Process of students presenting and peers making readings continues until everyone has presented.  
• Session closes with the tutor raising any other key topics missed in the discussion.  
• Intent is to develop students’ ability to make readings of work using discipline language and concepts, and judgment of design decisions, so students can better support each other outside of class. |

All internal crit methods attempt to engage students in their learning, and promote learning from others, by reducing the amount of times that the tutor tells the answer (Cowdroy et al., 2007; Webster, 2004; Wood, 2009). The literature (Dee Fink, 2013;
Hockings et al., 2008; Kuhn et al., 2015; Usher, 2009) explains the need to engage a more diverse student cohort and pedagogic approaches that challenge students to construct new learning. Both the conductor and the facilitator methods challenge students to become more independent. It was assumed that students would more likely be reliant on and compliant with the tutor in the critic method than they would in the conductor or facilitator methods.

The implications were that most schools (S3s, T3l, S1m and S2m) were prioritising the internal crit method as the central instruction method, with an approximate average of 30 minutes per student per week. To maintain this method, three out of four of these schools (S3s, T3l and S2m) relied on over-teaching the allocated paid hours and cross-subsiding their design units by using lectures for non-design units. The critic method appeared to be more closely related to past traditions of critique and behavioural instruction such as the master/apprenticeship (Cowdroy et al., 2007; Webster, 2004; Wood, 2009), when considered alongside the other methods.

With the reduction of resources for contact hours, it also appeared that schools had to explore other opportunities as the time required for the internal crit method was no longer available or there were inadequate resources (Budge, Clarke, & del la Harpe, 2007; Devlin, 2006; Kane, Sandretto, & Heath, 2002; Kember, 1998; Shulman, 2005). The University model with nine to 12 minutes per student per week employed event-based tutorials. An event-based tutorial refers to a short in-class task that can be undertaken by small groups of students to learn and reflect on before attempting at home. Academics thought it succeeded in engaging students more and increased the regular attendance of disengaged students. They also thought that the reduction of resources had improved and sharpened their teaching skills, but there were still some problems to resolve. Concerns included:

- the scaffolding of design activities had circumvented students’ discovery of the design process and had stunted their understanding to a more linear process.
- students did not fully understand the performance descriptors and requirements as described in the assessment rubric, which suggested two things: that these need to be more explicitly discussed in class and/or students are adapting a more passive approach as they “follow” instead of question the purpose of the in-class tasks and assessment practice.

Another implication suggested by the shift to event-based tutorials was increased preparation and management required when compared to minimal preparation with
internal crits and desk crits. This may create a compound effect as the University model already had the least tutorial time for students and the demand for preparation and management particularly expanded for the academic in a lecture/tutorial approach. The internal crit method required limited preparation as the tutor literally "walks-in and walks-out", relying on their existing knowledge base (Discipline and Discipline hybrid). So teaching contact hours may be minimised with in-class tasks but the pre-class preparation and management role expected of the academic expands significantly in these modes of teaching.

Irrespective of the instruction methods employed in the studio models there were still possibilities for critical and self-reflection skills to be overlooked or diminished by students' simply acting with little critical reflection of their own. A number of past studies (section 2.3.2) have shown that both the teacher and the student need to be prepared in their roles to ensure most benefit was gained through giving instruction methods and making interpretations in project-based learning or problem-based learning. Therefore, there is need for a significant focus on methodological approaches to support effective decision-making processes and design thinking to assist schools in their future planning (Budge et al., 2007; de la Harpe & Peterson, 2008; Helle et al., 2006; Savin-Baden, 2007).

5.2.2.2 Curriculum

The negative changes occurring in curriculum structures were the increased restrictions placed on University models with a fully defined compulsory curriculum, which appeared to be resourced on a lecture/tutorial approach. The lecture/tutorial approach generated large classes of the one-year level with multiple tutorial groups. Tutorials were often repeated in the University models to engage sufficient tutors and spaces. An implication of this approach is that more senior students and graduate architects performed the role of tutoring than in the past, or that it differed from the experience of Discipline models where there appeared to be no problem in attracting tutors. Another implication of the compulsory curriculum structure was the association with a more standardised approach to assessment, requiring detailed assessment tasks, rubrics and a series of staged summative assessments, which may contribute to an expanded academic workload.

For one school (T1m), the compulsory curriculum meant the modulisation of design units which left little space for discipline content as units were reduced to single weighting. The literature (AIA, 2010) on Australasian schools suggested that seven of
the 16 Australian schools had a curriculum structure where design units had a single weighting. It was also common in the University models to find service-taught units across allied design disciplines, suggesting less space for specific discipline content. Even though most of these implications are associated with the University models, the Australasian literature (Ostwald & Williams, 2008a & b; Zehner et al., 2009) indicated that all schools were experiencing the rationalisation of discipline content/units and reduction of resources due to “overcrowding” of the curriculum. Perhaps the difference between the results of this study and the literature (Ostwald & Williams, 2008a & b; Zehner et al., 2009) was the increased or compounding restrictions at different institutions.

5.2.2.3 Utilisation of space

Table 5.3. illustrates that the utilisation of space varied across the four studio models in relation to the influence of the institutional climate (University or Discipline), curriculum structure and teaching approach. The implication of this variation is that the teaching approach does not necessitate a particular type of space in order to occur. The lecture/tutorial approach utilised a lecture/theatre space but the tutorial may occur in a design classroom (University model) or studio facilities (University hybrid model). The small-group teaching approach may occur in studio facilities (Discipline model), design classrooms (Discipline hybrid model) or an architect’s office.

Table 5.3  Typical utilisation of space by studio models

<table>
<thead>
<tr>
<th>Space</th>
<th>University</th>
<th>University hybrid</th>
<th>Discipline hybrid</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture theatre</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design classroom</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>slightly larger tutorial rooms that are adjacent to each other with an operable wall, pin-up boards and mobile furniture</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studio facilities</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>dedicated desk space for student to own/work on, securable personal storage and kitchenette</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Architect’s office</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

The type of space being utilised did influence the teaching methods being adopted by the schools with design classroom spaces (University model, Discipline hybrid model).
These schools (T1m, T2s and T3l) adopted teaching methods that would assist students in fostering peer learning through group activities and site camps. In addition, schools T1m and T2s thought it important to develop and even enhance communication and designing skills through their in-class tasks and activities, as these were fostered in studio facilities. School T3l took a different approach and prioritised the gathering and discussing of work produced outside of class time and its environment. For school T3l a discipline-influenced curriculum structure, teaching methods and assessment structures were still achievable despite the long-term absence of studio facilities. This indicates that in school T3l’s context the absence of studio facilities works and is not seen as an impediment to student learning and the reputation of the school (T3l²). The school culture in T3l thought studio facilities were anachronistic, particularly in the current climate where students’ approaches to studying and the mobility afforded by digital technology allows greater flexibility and freedom than before. On the other hand, a respondent from school T1m also found the absence of studio facilities to be a conundrum as they acknowledged the different benefits and disadvantages of studio facilities in which they had studied, but they now taught with design classrooms. From their perspective a vacuum existed for another, third type of space, and it was not the computer laboratory, even though these were well utilised in Australasia (Zehner et al. 2009).

Schools with studio facilities (S1m, S2m and S3s) seldom discussed the role and the benefits of the studio facilities in the context of the interviews. It appears that for schools S1m, S2m and S3s the role and benefits of studio facilities were established and therefore unnecessary to discuss. Their responses instead focused on maintaining and extending studio facilities to meet increased student load. Two of the three schools (S2m and S3s) indicated that they had recently been successful in extending the number of studio facilities to meet student load as the institution rewarded them based on the reputation of graduates and the school to attract more students. It was noted at school S2m that the support received from the Vice-Chancellor was unusual compared to the typical response of no support for studio facilities as discussed by other Heads of Schools in Australasia (S2m¹).

A respondent from school S3s held concerns that the potential for studio facilities to accelerate and support student learning was not being achieved as many students were disengaged with these facilities. A further two schools in Australia (REG-AM and NSW-AM), that have access to studio facilities, also reported students disengaging with the facilities (see section 4.1). These accounts contrast with schools S1m and S2m where
studio facilities were apparently well utilised, indicating an established studio culture. What these results suggest is that the accessibility of studio facilities alone does not assure student engagement or the development of a studio culture. These findings relate to Ashton’s (1997) study in the UK which found that facilities alone do not encourage engagement and a studio culture to develop. However, according to Vowles et al. (2012), there was a revitalisation of studio culture occurring in UK schools where studio facilities are accessible, in part encouraged by access to digital fabrication and model-making equipment.

The findings so far about the utilisation of space do not make a compelling argument for the need of studio facilities over the use of design classrooms in a context of reduced resources and deficiency in university spaces. Even though advantages were seen with access to studio facilities to house and inspire design work in progress, the design classrooms were devoid of this atmosphere and work as they were used by others, and usually required setting up the furniture layout due to the activity of the previous class or users. However, as indicated above, access to studio facilities alone did not guarantee studio engagement or the development of culture.

A number of academics reflecting on the practice of studio facilities in schools (T1m, T2m and S3s) speculated that the development of culture and engagement in studio facilities was related to the incidence of the unit coordinator or design leader visiting the spaces. One academic perspective was that in order to maintain students’ engagement in the studio facilities, they needed to “wander” through every so often and make encouraging passing statements, whereas another saw this as the unit coordinator or design leader “checking” on students’ commitment to studies. They observed that teachers were less convinced by students’ work and approach when it took place outside the culture of the studio facilities. On the other hand, another academic thought studio culture was not based on access to studio facilities but by providing a reason to gather and learn from an intensive block of days when there is sufficient staffing to support students’ learning. The contact hours may well be associated with improved student engagement and this perhaps helps explain why a visiting academic (NSW-AM) to school S1m perceived that a strong studio culture existed, as students were working and socialising on a Friday evening in the studio facilities without an immediate assessment task due. School S1m had the largest proportion of contact hours for their students, with these hours occurring over three days, but this was highly unusual compared to the other schools in Stage 2.
In conclusion, the utilisation of space in Australasian schools has influenced the teaching methods employed to either support the use of the studio facilities, or mitigate perceived losses associated with a lack of studio facilities, to support and accelerate learning outside of class time. However, the space alone does not necessarily reflect levels of student engagement, it is more a combined result with the curriculum structure, teaching methods and assessment. It may also include the self-selection of students applying to the school. Irrespective of these characteristics, the schools in Stage 2 have maintained program accreditation, meaning that the minimum student outcomes are being achieved with studio facilities and design classrooms even though the development of culture from studio facilities is typically valued by academics.

5.2.2.4 Assessment

There were a number of possible implications from the institutional climate on assessment (section 4.2.6) in the schools. The University- or Discipline-influence on assessment appeared in the studio models through the difference in the staged milestone assessment approach and the portfolio approach (see Table 4.8). The difference is that the staged milestone assessment approach involved multiple summative assessment tasks and the portfolio assessment approach typically had one summative assessment. There were both positive and negative implications that may arise from these approaches:

- influence of the learning and teaching environment on student engagement and their approach to learning from regular summative assessment every two to three weeks (University models) or a single summative assessment (Discipline models);
- academic workload outside of class time; and
- reliability of assessment.

The positive implications from having multiple summative assessments in a design unit included the variety of assessment delivery to provide timely feedback on students’ learning, spreading the risk beyond one-off assessment, and highlighting significant milestones in the project resolution. In school T1m the institution required assessment delivery to vary in order to accommodate different learning styles and increased engagement of the students with the learning outcomes. The potential negative implications of multiple assessments include increased workload for the unit coordinator and tutors in relation to marking and moderation. The additional time spent marking and moderating can mean that there is less time for supporting student
learning, particularly if the marking takes place in class time. Furthermore, the time spent marking multiple assessment tasks in or outside class time increased the likelihood of more generalised feedback being provided to students as there may be insufficient time to provide greater detail. This has the potential to provide less value as opportunities to assist students in critically reflecting on their learning are reduced, and it therefore diminishes the intent of the assessment overall. As Biggs (2003) warns, too many assessment tasks has the potential to erode student learning and devalue the intent of the assessment tasks, when assessment has been overused to motivate student learning.

In nearly all instances, academics from schools employing a staged milestone approach described how the use of small-weighted exercises (T2s and S3s) or small formative exercises (T1m) had improved student engagement. There was also evidence that the potential negative implications described by Biggs (2003), regarding too many assessment tasks devaluing the process, could occur in schools T2s and S3s. The potential occurred from a number of small summative assessment tasks, which were colloquially referred to as "two percenters" by students in T2s and S3s design units. The greatest number of summative assessment tasks reported was in school S3s where a third-year design capstone unit included nine assessment tasks over 14 weeks (Table 4.8). As stated, the occurrence of nine assessment tasks had significant implications for the marking and moderation workload for the unit coordinator and students preparing the work. It also meant that most marking occurred during tutorial time, resulting in fewer contact hours for tutoring and ultimately creating an environment that was assessment driven.

In relation to academic workload, two academics (S3s and T1m) conveyed how their attempts to have small tutorial classes of 10 to 11 students contributed to increasing their marking workload as unit coordinator. Essentially, the two academics had elected to have smaller tutorial class sizes so their monies for marking assistance could go to tutoring hours instead, which meant later on that one to two assessment tasks were the responsibility of the unit coordinator to mark outside of class time. These assessment tasks were typically more labour intensive and difficult to assess via a critique or presentation, as they were a report, reflective report or detailed working drawings. In the specific case of T1m, their decision to operate with smaller tutorial class sizes by using marking assistance money led to their marking 280 reflective reports. In both examples the underlying consequence was less time to commit to other workload responsibilities such as research outputs and potentially less return for the students in
the quality of the feedback or its relevance if returned too late. These examples demonstrate how attempts made by unit coordinators to maintain smaller tutorial classes and multiple assessments with reduced contact hours lead to an underestimation by unit coordinators of their time and responsibilities. This suggests that these academics are unconvinced of the learning effectiveness achieved in larger tutorial groups, despite the resourcing context within which they are working.

Another problem experienced with the implementation of multiple assessment tasks and reduced resources is that there was less contact time to explain and identify students’ misconceptions, particularly in a large tutorial class of 20 for three hours per week. There was also less contact time for critical reflection when the priority was to assist students in undertaking the exercise and developing skills. An example was the poor performance of students writing a reflective report on a collaborative design experience, the poor performance being due to their unfamiliarity with the task and lack of instruction and feedback in its development (T1m2). This was a consequence of the program focusing more on the process of designing than how this may be articulated and reflected on due to reduced teaching weeks and the creation of smaller tutorial groups.

Discussed next are the implications from a portfolio assessment approach, where there was typically one summative assessment task which occurred where a small-group teaching approach was employed, with the group possibly comprising students from multiple year levels. Academics reported the benefit of a single assessment as the result reflected the success of the design solution. For them the periodic assessment of the design during its development was less reliable and may not reflect the final outcome. One summative assessment meant that students had time to learn and experiment without the fear of failure. Weekly formative feedback, as well as an interim crit in the middle of the semester, provided verbal and written feedback on progress. No grades or assessment weightings were assigned at the interim crit but a clear message regarding the design’s potential, or lack thereof and the need to respond, was conveyed in writing. This suggests that the academic workload outside of class was minimal due to the fact that it mostly occurred in class time, and there being only two points where more formal feedback was produced.

Those employing the portfolio approach (S1m, S2m and T3l), when asked to reflect on the effectiveness of the design unit in learning and teaching, did not articulate any implications in their interviews. Other studies conducted in Australasia, US and the UK
(Wood, 2009; Cowdroy et al., 2007; Bachman & Bachman, 2006; Webster, 2004; Anthony, 1991; Dutton, 1991; Beinart, 1981a) indicated that there were potential problems with a single assessment task due to the crucial role that formative feedback plays in student learning outcomes. These studies had often found that difficulties are experienced in providing effective formative feedback that discourages students from adopting compliant and passive learning. The implications of a more compliant and passive learning approach are that students are less engaged and typically more dependent on their tutors’ instructions and values, therefore potentially affecting the reliability of the assessment of students’ knowledge and application. This demonstrates both the importance of a portfolio component of progress over the semester and the role of the discussion in the final crit to ascertain learning, otherwise the learning may be less deep and more copying. Another potential problem was the learning environment created by a single summative assessment task, as it may support risk taking in design but it also may mean that students were motivated by fear and pleasing their tutor in their approach and engagement (Bachman & Bachman, 2006; Webster, 2004; Anthony, 1991; Dutton, 1991; Beinart, 1981a).

In summary, both the staged milestone and portfolio assessment approaches had negative and positive implications in relation to the learning environment, academic workload outside of class time and questions about the reliability of assessment. Both assessment approaches had the potential for students to devalue the number of assessment tasks required or disengage from learning the design process as they tried to satisfy their teachers’ preferences. In the staged milestone approach there was an increased risk of assessment and moderation workload for the unit coordinator. Problems may also be experienced in retaining the goodwill of the tutors due to over-teaching allocated hours, meaning the formative and summative assessment may be diminished for students. Despite these problems with the staged milestone approach, it can also benefit students by undertaking different assessment deliveries and gaining timely feedback. The potential negative implications from a portfolio approach are the increased dependency on the tutor’s instructions and values by students, as there was typically one summative assessment. However, having more time to discuss and reflect between different approaches or ensuring the preparedness of the teacher and student to participate effectively may ameliorate this. It is also equally important in both the portfolio approach and the staged milestone approach that there is reliability in the assessment of learning and moderation, something that can be potentially weakened by
fewer resources and the increased pressure from governments and universities for students to succeed.

5.2.3 Summary

This section, based on the interviews with 10 academic staff (section 4.2) and supported by the secondary analysis of 18 Australasian schools of architecture (section 4.1), has shown how the institutional climate has contributed to the diversity of studio models in Australasia. A typology of studio models (section 5.2.1) was discussed to capture the diversity of characteristics and to assist in identifying the potential implications of having such diversity in studio models (RQ3). These were further explored in relation to teaching methods, curriculum, utilisation of space (environment), and assessment themes.

The differences between the University model and the Discipline model were substantial in relation to human and physical resources. The University model appeared to set new precedents for interpreting the “necessary physical and human resources” (ANZ_APAP, 2013, p. 10) and go beyond the original and broad intent of the policies and documents defined in AIA policies (2008a & 2009), ANZ_APAP (2013) and NSCA documents (AACA, 2015). This is by no means asserting that the outcomes resulting from having diversity in the studio models is either "good" or "bad" for architectural education, but the conceptions of the architectural community and the intent of the accreditation process are being challenged. Further, the occurrence of the University model in other Australasian schools is likely to have gone beyond the purposeful sample group. This may be due to the two schools informing the University model being affiliated with the Group of Eight (G08) and Australian Technology Network of universities, so they were presumably well resourced. In addition, the average SSR in Australian schools of architecture in 2006 was 1:24 (Ostwald & Williams, 2008a, p. 114), and the University model typically operated with an SSR of 1:20. The University model was the model most closely resembling a liberal arts program and the Discipline model was closest to a “traditional” studio, hence the difficulty in conceptualising the studio in Australasia.

The implications of diversity on teaching methods, curriculum, utilisation of space and assessment themes suggested that the access to studio facilities was not a necessity for schools to implement discipline-based teaching methods/structures and vice versa. Student engagement and the absence of studio facilities had informed teaching methods in the University and Discipline hybrid models. These models particularly
focused on fostering peer learning and developing a positive studio culture through the
design of their different teaching methods/curriculum structure and assessment
approach. The success of teaching approaches, instruction methods and assessment
was associated with the skills of the tutor and students in understanding their roles in
teaching and learning, respectively. Therefore, there was no correct method or studio
model, but some found success more challenging than others due to a diverse student
cohort with the pressure of larger tutorial class sizes and less contact time. However,
the approaches associated with the University models appeared to increase academics’
workload outside of class time, even though the lecture/tutorial approach suggests an
economy. This study has shown that many of the academics interviewed preferred to
use discipline-based methods and attempted to maintain these with practices of over-
teaching and cross-subsidising design units with non-design unit resources, thus the
need to explain in more detail the potential pressures contributing to academic
workloads and their future concerns for the studio (Ostwald & Williams, 2008a &
2008b; Zehner et al., 2009).

5.2.4 The term studio

In response to RQ1 “How is the term studio conceptualised?” it can be suggested,
through the diversity of studio models, that multiple interpretations exist between
schools but inconsistencies also exist within schools in the use of the term studio. These
inconsistencies were identified from the responses (section 4.1) made during
interviews and focus groups on the studio form, design curriculum titles and
interpretations by Stage 2 participants. The results may suggest that when academics
in an interview or focus group are asked, “What form does your studio take here?”
(Ostwald & Williams, 2007a, p. 1) the majority qualified their response by the school
access to studio facilities. Academics largely identified their studio form with a
dedicated and physical workspace for students, even though for the majority the studio
form was based on its teaching methods (81%). This may be due to a cultural legacy
attached to studio facilities in architectural education. To a lesser extent, academics
described their studio in the context of the curriculum (47%) or accessibility to studio
facilities (44%). It was common for the respondents to imply that their studio form was
very much like other schools in Australasia, despite the diversity that exists.

Ostwald and Williams (2008a) hypothesise that the occurrence of the term studio in
the design curriculum titles such as “design studio” was a reflection of the loss of studio
facilities and schools wanting to maintain a connection. A survey of the Australasian
Handbook of Architecture schools from the time (AIA, 2008b) shows that no association existed between the curriculum title “design studio”, “architectural studio” or equivalents with the access to studio facilities. The term studio appeared in more than half of the schools with access to studio facilities or design classrooms (Table 4.12). A comparison with the most recent data (AIA, 2015) suggests a slight increase in the number of schools referring to the studio in the design curriculum titles irrespective of access to studio facilities or not.

Another conflict appeared within schools through the inconsistent use of the term studio in undergraduate and postgraduate curriculum titles. One degree contained the reference to the term studio and the other degree did not. This occurred irrespective of the type of learning space and conceivably the teaching approach, therefore it suggested that the use of the term studio in the curriculum titles has little meaning in relation to the physical space. This may also suggest the conflicting and flexible approach to the term studio and inherent problems for potential miscommunications and the ambiguity of the studio concept.

When academics from Stage 2 (section 4.2) were asked to interpret findings from the Australasian data (section 4.1), many agreed that the studio concept was plural in form (60%, six out of 10 academics). The studio concept may include teaching methods, the curriculum or the physical place, irrespective of the school accessibility to studio facilities. It was explained that the studio terminology had many applications and meanings understood by the architectural community in instruction or discussion, which further suggests a strong cultural association in architectural education.

Only a small minority of academics (20%, two out of 10) identified a specific use of the term studio. To them the studio represented their teaching methods, and the curriculum was "design units" and the spaces were “design classrooms”. They also thought that their positions were likely to be inconsistent with their colleagues as the term studio was used frequently to represent the design units and spaces. The remaining two academics (20%) thought the studio concept was holistic and found the request to interpret Stage 1 results (teaching methods, curriculum and/or physical place) to be confusing and unnecessary.

In summary, the term studio was conceptualised within architectural education in a variable fashion and was dependent on the context or the person. In the context of a formal interview or focus group, the majority of respondents qualified the type of physical spaces used in their school before describing the studio form. There was
substantial inconsistency in the use of the term studio in curriculum titles, and the inclusion of the term within and across schools was suggested to have lost a specific meaning. Finally, many respondents from Stage 2 thought that the studio concept was plural in meaning and may include the physical place, teaching methods or curriculum irrespective of the type. A few thought the request to interpret the studio concept according to the results of Stage 1 unproductive as studio was holistic and could not be separated into parts. Another few academics thought that the studio concept was singular and referred to a teaching method due to the absence of studio facilities in their schools. Drawing together these findings it appears that studio models and the use and understanding of the term studio have continually evolved and adapted with the changing higher education landscape. Therefore, it has been relatively difficult to interpret the term studio and what is actually being referred to in any detail without further qualification or context.

One of the suggested implications is that the essence of the studio concept and form in architectural education in Australasia will continue to be broad. The broadening of the concept means the existence of the Discipline model is most reliant on the relationship held between the school and institution, as there is insufficient legibility of the term studio and evidence-based benefits. Claims that the presence of studio facilities can accelerate learning or that internal crits and personalised tutoring encourage better learning approaches are mainly based on academic perspectives rather than on recent evidence in the region. There is a need for more explicit discussion and research of studio concepts and forms (Chapters 1 and 2) to inform debate in order to know the benefits and implications in the changing higher education landscape in Australasia.

### 5.3 Conditions in Australasian universities revealed by the studio lens

This final section discusses what the studio lens reveals about the studio conditions being experienced in Australasian universities (RQ4). The studio lens has suggested that discipline-based approaches in teaching methods, curriculum structure, assessment and specialist spaces are dependent on the institutional climate and whether it accommodates or recognises alternatives to the trend to normalise learning and teaching methods and their resourcing. It appeared that the reduction in resources and the expansion of students occurring across Australasian universities (section 1.2.1) in the period of 2007 to 2011 meant that the availability of space was at a premium. The implications were that discipline or specialist spaces once "owned" by architecture
schools were starting to be “clawed-back” (sections 4.1.1 and 4.2.4). The premium on space also signified the common management strategy to centrally timetable spaces and design new spaces to be more flexible for the needs of different disciplines (section 1.2.1). Another trend occurring in timetabling was the need to repeat tutorials to find sufficient spaces for the increased number of tutorials due to growth in student load. Schools also needed to manipulate the timetable to make casual staffing positions more attractive to practitioners by repeating tutorials to make a half-day or full-day commitment (section 4.2.5). These decisions were not made in relation to student learning and needs but to manage a sufficient pool of spaces and tutors. It would be useful to link whether disciplines other than architecture are also facing these problems and if other disciplines are over-teaching and cross-subsiding units in response to the effects of massification and globalisation. Furthermore, there are possible advantages from discussing the accreditation processes used in other professions as a way to enhance the protection of “necessary physical and human resources” (ANZ_APAP, 2013, p. 10). It is likely that the conditions being experienced by studio and, as an extension, architectural education, have implications for disciplines other than architecture that employ specialist teaching approaches and facilities.

5.4 Chapter summary

This chapter has drawn together the results from Chapter 4 and discussed the influence of the institutional climate and its factors on the diversity of studio models. A typology of studio models was presented and suggested how factors of institutional climate have impacted on the curriculum, teaching methods, timetable, assessment and utilisation of space. It appears that the implications of different resourcing levels on teaching methods has also impacted further at the granular level of instruction and on the teaching role.

Finally, this chapter has suggested the effect that the implications flowing from the diversity of studio models is having on the studio concept in expanding its potential meaning, has enabled inconsistent use in curriculum titles and made the concept less meaningful. Therefore, schools may find it difficult to claim that a certain level of resources and facilities is necessary to maintain particular studio models, as there is no compelling evidence or distinction whilst the studio concept is ambiguous. Little influence on resourcing and the studio model appears to be provided from the past or current accreditation process (ANZ_APAP, 2013) if the national competency standards
are to be met (AACA, 2008; AACA, 2015). The conundrum is that academics value the
culture and established practices associated with the studio concept in architectural
education to teach the designing process. Another conundrum is the sustainability of
many studio models identified, as they are susceptible due to the reliance on over-
teaching and cross-subsidising resources in design units.

The likely future for studio models in Australasia is the trend of fewer resources and
increased student load. The mooted deregulation or changes to the Australian higher
education sector suggest that the divide between universities offering architectural
programs may widen and create a distinct two-tier system that is reflective of
university or discipline influence. Looking at the recent past indicates that even a
change in government will not likely change the trajectory of massification and the
global higher education climate.

Chapter 6 will conclude the findings in relation to the research questions and make
recommendations for future research opportunities.
6 Conclusions

This chapter documents the conclusions drawn from the study reported in this dissertation. The previous chapter discussed how factors of institutional climate influenced the diversity of studio models and a typology of studio models was developed. This allowed for discussion of potential implications that may be occurring due to the diversity in the studio models and gave a background to various views on the studio concept or form. The chapter closed with a discussion on what the study on the studio lens in architectural education revealed about the studio conditions in Australasian universities during the period 2007-2011. In this final chapter of the dissertation, the research questions developed for the study of the studio are answered and potential research opportunities are drawn from the study. The catalyst for this research was the finding from academics that considered the studio to be at greatest risk in the future of architectural education in Australasia due to pressures of reduced resources and increased student enrolments (Ostwald & Williams, 2008a, p. 147). The identification of the studio is significant because of its role in learning and teaching design, design units typically represent the largest proportion of the curriculum and are the most resource intensive (Crinson & Lubbock, 1994; Dutton, 1991; Groat & Ahrentzen, 1996; Kilbridge & Porter, 1981a; Ostwald & Williams, 2008a; Salama, 2015). However, these concerns about the future of the studio concept in architectural education (Ostwald & Williams, 2008a) were complicated by academics’ use of the term studio as many different meanings were evident, but they thought a shared meaning existed within the architecture academic community. Therefore, the focus of this study was to understand how the studio concept and forms were responding to the changing higher education landscape in Australasia over the period of 2007 to 2011. The study acknowledges that architectural education is also responding to a time of significant changes in architectural practice but these are not the focus of this study (Bates et al. 2015; Salama, 2015; Spiller & Clear, 2014; Ostwald & Williams, 2008a & b).

The changing higher education landscape in Australasia refers to government policies and institutions’ response to trends of massification and globalisation, which contributed to enrolment in architectural education nearly doubling from 1986 to 2006 (Ostwald & Williams, 2008a, p. 117). While funding levels have remained relatively static in Australia since that period of rapid growth (OECD, 2010), there has been a
marginal increase in New Zealand. The studio forms and design teaching in Australia have more acutely experienced these constraints because of their prominence in the curriculum and more intensive use of human resources. From this background, the aim of the study was to understand how the studio concept and forms were responding, which led to the development of four research questions:

RQ1: How is the term “studio” conceptualised within architectural education in the Australasian context?

RQ2: What are the factors that have led to the diversity of studio models in Australasia?

RQ3: What are the implications that arise from having the diversity of the studio models?

RQ4: What does the focus on the studio reveal about architecture education and its conditions in Australasian universities?

The preceding chapters have reported the study of the architectural studio over the recent past in Australasia. Since this time the conditions for studio models have adapted to further reductions of resources and increases in enrolments. Therefore, the scope of this study means that the studio models reflect the period of 2007 to 2011 but proposes a typology that can be updated to include new conditions. It is an opportune time for this study to be presented, as the future direction of architectural education in Australasia is at a pivotal point with the first fully online program being considered for accreditation.

The decision was made in this study, to employ a mixed methods approach related to the nature of the research questions in order to capture a more in-depth understanding of the studio concept and its forms by using qualitative and quantitative methods (section 3.1). A two-stage approach was adopted by first of all (Stage 1) examining the interview and focus group transcripts collected by Ostwald and Williams (2007a & b) that led to the studio being identified as most under threat and the greatest future challenge. By conducting a qualitative content analysis of the qualitative and quantitative data not covered in the original study, further trends were established that informed the selection of Stage 2 participants and data collection.

Stage 2 was developed to capture the maximum variations in the studio according to learning and teaching methods, and the type of physical spaces. The criteria used to
select the purposeful sample group also included the potential differences that may emerge from the school’s location and size in Australasia. The purposeful sample group was comprised of 10 academics from six schools. Four of the schools were from different states in Australia and two schools were from New Zealand (section 3.2.4).

The data collection involved a series of interviews with respondents about a recent design unit that they had taught and the collection of unit outlines, assessment descriptions, and relevant school profile data. Targeted observations of physical learning and teaching spaces were also carried out. A top-down analysis followed, using a recognised framework of Biggs’s (2003) constructive alignment system for quality learning and teaching because of its prominence and use in higher education in Australasia and the UK.

The approach taken to ensure rigour and trustworthiness (section 3.3) in the research included:

- the thorough presentation of data analysis with “thick” descriptions (Geertz, 1973) of the academic voice and language;
- confirmation process of data and interpretation by clarifying with academics in subsequent interviews and invitation to comment on draft results; and
- the triangulation of data (Creswell, 2005) to cross reference between interviews, documents and observations, as well as comparisons with school profile data and literature findings (Chapters 1 and 2).

Finally, it was understood that there was the opportunity for multiple truths to come from the “data” (Rubin & Rubin, 2005) but some truths would be more credible by the rigour taken to demonstrate a fair representation of the original meaning (Woods, 1999, p. 56; see also Ezzy, 2002). It was from this background that the responses to the research questions (RQ1–4) were collated, and these are presented below (sections 6.2 to 6.6). The chapter closes by making recommendations for future research opportunities and presenting a conclusion to the study.

### 6.1 Limitations of study

On critical reflection the study would have benefited from the inclusion of another Australian school with studio facilities as two of the three schools with access to studio facilities (S1m, S2m and S3s) were in New Zealand. It would also have been more ideal to have two academics from each New Zealand school, as was the case in the Australian
schools, as well as a gender profile that reflected the trends in academia, the profession and student body. The sample group was over-represented with female full-time academics (six out of 10). However, the influences of these issues, to this study, are minimal for a deep/rich qualitative approach. Furthermore, each academic had held a senior leadership role as a program head or degree coordinator, and had taught for at least 10 years, some in a number of schools, which equipped them with broad experience and knowledge of the studio and school. Their responses were also cross-checked with data collected from the schools in 2007 and school profile data (AIA, 2008b). Overall, these limitations are believed not to have adversely detracted from the development of a typology of studio models that provides a better understanding of the diversity of studio models in the Australasian context, through the factors involved and the implications from having such diversity.

6.2 The use of the term studio

At the start of this dissertation studio definitions in Australasia were examined and it was identified that commonalities existed within the themes of curriculum, teaching methods, and physical place as aspects of the studio concept (see Chapter 1). Both of the Zehner et al. (2009) and Ostwald and Williams (2008a) definitions conveyed that studio was a program involving a mode of learning and teaching, typically small-group teaching with a project at its centre. The design process and practices were also enculturated in a community that may meet within a physical place or constructed environment. Neither definition limits the studio to a physical space/place.

The findings from this dissertation extend RQ1, “How is the term studio conceptualised within architectural education in the Australasian context?”, in particular how the meaning and use varies across the 10 academics interviewed from six schools. The findings came from three different settings:

- secondary analysis of the studio form from Ostwald and Williams’s (2007a) data collection (4.1 Stage 1: Australasian results),
- studio titles in the design curriculum area (Stage 2 results, section 4.2.8), and
- commonplace use in class instructions and school conversations (Stage 2 results, section 4.2.8).

Stage 1 found that, in a formal interview context, academics typically qualify their description of the studio form in contrast to the tradition of studio facilities. Respondents were more likely to explain the studio form in relation to teaching
methods. Nearly all responses indicated that the studio form was comprised of teaching methods and then a second area, either the curriculum or access to physical place (section 4.1.3). Overall this is a significant shift from the origins of the term studio, which refers to a physical space for students to work and collaborate, both in and outside of class hours.

Stage 2 involved observations/document analysis of the occurrence of studio titles in the design subject area where it was found that the majority of schools in Australasia (74%) included the term studio in their design unit title, and at least half of these schools did not have accessibility to studio facilities at the time. Those who did not include studio in their design curriculum titles (26%) could either have access to studio facilities or to design classrooms (Table 4.12). Moreover the term studio may be evident in the undergraduate design curriculum titles but not at the postgraduate level and vice versa. This shows the changing use of the term studio even within a school. According to a recent inspection of Australasian Handbook of Architecture schools (AIA, 2015), these types of inconsistencies have increased when compared to 2007 (AIA, 2008b). Therefore, references made to the studio in the design curriculum titles more often than not may hold little significance other than cultural legacy.

During interviews, when considering where the term studio was used in class instructions or school conversations, it became clear that it was commonplace for the term studio to represent the design curriculum, pedagogy and venue in conversations and instructions, interchangeably and irrespective of access to studio facilities. For more than half the academics from Stage 2 (six out of 10) the term studio was multivalent and multidimensional and could be understood even if the term studio was used more than once in a sentence or conversation representing different concepts. It was explained, by a number of academics, that the community of architectural education, including academics, students and practitioners, could culturally understand its varied applications or meanings from the context of the conversation. There were two other positions held by the remaining academics. Two academics thought they used the term studio only in reference to teaching methods as the curriculum referred to design units and the physical place was the design classroom. However, they both separately commented that their colleagues would more likely use the term studio for all three (teaching methods, curriculum and physical place). Another two academics believed that the studio concept was holistic and could not understand why anyone would ask the question and want to differentiate it into parts.
In conclusion, the use of the term studio in architectural education in Australasia has become an abbreviation and symbol of design education signifying the teaching methods, then curriculum and least of all place, and is changing due to reduced facilities, resources, and increased presence of online learning. Formerly the term studio was understood through its tradition of a physical place for students to gather and work in and outside of class, the use of project-based learning that requires a variety of media to resolve, and the enculturation of values and practices from the community of architecture. This study has confirmed previous findings, however the enculturation process or the development of a positive studio culture was rarely articulated in the interviews. Few references were made to peer learning which implied part of the positive studio culture. The study suggested that academics could articulate their interpretation of the studio form but more often tended to abbreviate its description by using the term studio.

6.3 Factors leading to diversity of studio models

In response to RQ2, “What are the factors that have led to the diversity of studio models in Australasia?”, was the overarching influence of the institutional climate, which includes the factors of centralised systems, discipline-based philosophy, and student disengagement and methods used to engage students (section 5.1). It is evident from the studio lens that the majority of Australian universities had reduced resources in staffing with the expansion of student enrolments. For some schools this was compounded by the restrictiveness of centralised systems in learning and teaching policies and procedures, and insufficient spaces due to the increase in students (section 5.2). These may be less associated with the New Zealand participants, as one of the three schools there had experienced limited changes, with their only concern revolving around accommodating increased numbers of students in studio facilities. This school had double the contact hours of any other school. Another factor influencing the diversity of studio models included the philosophical position to learning and teaching and whether this was based on established discipline practices or pragmatically aligned with central university systems (section 5.2.1). This particularly impacted on the teaching methods, assessment and curriculum structure and led to practices of over-teaching the allocated hours and the cross-subsidising of design units from non-design units (section 5.2.2). The final factor influencing studio diversity was students’ level of engagement with studio models, as experiential learning/project-based learning requires students to participate in critical reflection and discussion for it to be
completely effective. Academics with an absence of studio facilities changed their teaching methods and utilisation of space to engage students more fully and improved regular tutorial attendance (sections 5.2.2.1 and 5.2.2.3). Academics with access to studio facilities in New Zealand did not report problems with student engagement. Australian schools (sections 4.1 and 4.2) reported that they experienced problems with students not using studio facilities as they would have in the past.

In comparison to these factors, above, the professional accreditation process (ANZ_APAP, 2013, p. 10) was having minimal influence on the studio models. The purpose of the accreditation process is to ensure graduates meet the national competency standards (AACA, 2015) with the necessary physical and human resources over five years of study (sections 5.1, 5.2.3, 5.3 and 5.4). The intent of the accreditation process is to ensure the quality and standards of architectural programs and graduates while supporting a diversity of approaches.

6.4 Implications arising from having such diversity in studio models

In response to RQ3, “What are the implications that arise from having the diversity of the studio models?”, this study suggests that there are significant implications resulting from schools’ responses to the institutional climate in the resourcing of the design subject area, leading to differences in the curriculum structure, teaching methods, assessment and the environment of studio models (Table 5.1) Differences between these characteristics did not impact accreditation, and diversity between schools is encouraged. The following explains in more detail how a typology of studio models provided insights into the potential implications arising from having the diversity in studio models.

Four studio models were developed to reflect the maximum variations occurring in Australasian schools (section 5.2.1), namely, University, University hybrid, Discipline and Discipline hybrid (Table 5.1). The names of the studio models reflect the influence of the university and whether discipline-based practices were accommodated. Models that ended with hybrid signified a different combination of teaching, assessment and curriculum structure with the utilisation of space.

The University model signified the considerable influence of the institutional climate in the resourcing and structure of the fully defined compulsory curriculum, meaning a large class including all students from the one-year level required a more generic lecture/tutorial approach. On the other hand, the University hybrid model had access to
studio facilities and cross-subsidised design teaching to maintain internal crits with small groups instead of tutorial tasks. The Discipline model experienced greater freedom and accommodation from the institutional climate to employ established practices in architectural education than generic approaches to learning and teaching in higher education. This was suggested by the employment of an elective curriculum structure for design units, allowing multiple year levels in a small class where internal crits and personalised tutoring was the only form of instruction. The freedom may also have included the assessment approach of one summative assessment at the end of the unit, supported by weekly formative feedback. Design teaching was resourced at a higher level than non-design units. The significant difference in the Discipline hybrid model was the absence of studio facilities and the central employment of internal crits to deliver design instruction as personalised tutoring was removed from practice.

The implications resulting from having this diversity in studio models was discussed in detail in section 5.2 and summarised in Table 5.1. The main findings included the:

- substantial difference in human resources, for example the average tutorial time per student per week in the University model is nine to 12 minutes compared to the other models, which typically had 30 minutes, and one school had 60 minutes. This can be further exacerbated by the percentage of the school curriculum designated to design learning over five years from 34% to 54%;
- concentration of instruction methods in response to reduced resourcing that may lead to gaps or tutors mistakenly providing the answer. Approaches to internal crits or tutorials have evolved that require different levels of participation from the tutor and the students (see section 5.2.2.1);
- sustainability of University hybrid, Discipline hybrid and Discipline models due to reliance on over-teaching, goodwill of tutors and cross-subsidising design units from non-design units;
- the role of the academic which differs in terms of the level of preparation and coordination required in the University model compared to actual small-group teaching in the other models.

Other findings had lesser impacts overall but still influenced and made distinctions evident between the studio models. These are:

- utilisation of space has had relatively minimal impact on the studio models and teaching approaches, however there are timetable implications for the
University model due to the lack of design classrooms for the large number of tutorial groups;

- assessment reflects the influence of the university-centralised approach of staged multiple assessments compared to the position where schools employ a single-weighted portfolio. There may be both opportunities and challenges for each, dependent on the environment created by the instruction methods;

- architectural practitioners are attracted to and invest their time in Discipline models due to increased autonomy with a small class and the perceived kudos. Their involvement in University models is improved by making their commitment a half- or full-time block of teaching, preferably on a Monday or Friday.

Research studies suggest that concerns exist with models such as the University model that future graduates will be less prepared to adapt to changes in society, technology and the production of architecture due to constrained knowledge of design and the poorer ability to integrate different knowledge domains (Cowdroy et al., 2007; Salama, 2015; Tim18; Webster, 2004). However, are these concerns valid or more an attempt to maintain connections with traditions of design pedagogy and its distinctive spaces? Positives resulting from the diversity include an increased inquiry into design teaching practices with the understanding that:

- small-group tutoring is more effective than one-on-one teaching,

- students readings and appraising the work of others is important, and

- there are potential benefits from team/group work beyond economic imperatives.

However, these changes are largely influenced by the changing higher education landscape and pragmatism rather than the impetus of learning and teaching research, drawing from disciplines other than architecture and the accreditation process.

### 6.5 Architectural education and its conditions in Australasian universities

In response to the final research question (RQ4), "What does the focus on the studio reveal about architecture education and its conditions in Australasian universities?", indications are that distinct discipline-based practices and specialist spaces that differ from university norms are being challenged by the implications of massification. This is predicated on the studio lens being analogous to the "canary in the coal mine", a
reliable indicator of the condition of architectural education in Australasia as the studio represents the greatest proportion of the curriculum and the level of invested resources by universities or schools. Studies in Australia and New Zealand show that the resourcing of higher education programs at undergraduate and post-graduate levels has generally been reducing, as evidenced by the rise in SSRs, and the rationalisation of majors (Dobson, 2013; Goedegebuure et al., 2008; Turner & Brass, 2014). It is therefore, likely that other disciplines that incorporate design, creativity and problem solving, including performing arts, engineering, design, art and perhaps even the science laboratory among others, are experiencing similar stresses on their resources and utilisation of space. It is likely that references made by architectural programs to the centralisation of timetabling, claw-back of spaces and space charges are also common problems for other disciplines. These assumptions are based on the similarity of SSRs between architecture and the national average for all disciplines in Australia (AG, 2009, p. 15; Ostwald & Williams, 2008a, p. 114). At the time, in 2009, it was acknowledged that the national average of SSRs was contributing to student engagement problems and concerns were held about Australia’s competitiveness internationally, as education is the third largest export (AG, 2009, p. 6). In contrast, the circumstances in New Zealand were less adverse and more likely delayed, as increased stress was beginning to be reported in the architecture discipline in 2010 (section 4.2) and anecdotally in 2015 (invitation to revisit participant school).

Looking through the studio lens has revealed that the conditions and the approaches taken by Australasian universities differ and can have a significant influence on the learning and teaching of disciplines, in particular the resources allocated and the levels of freedom with which disciplines are able to spend or concentrate their means. In architectural education it was apparent that the academic role and teaching approach varied significantly depending on the flexibility of the curriculum structure, for example the difference between compulsory and elective-based units and modularisation of units. These had implications on the size of the overall class, effective teaching strategies and level of management and coordination required for a large or small class. It was also evident from observing the situation of architecture education through the studio lens (2007 to 2011) that learning and teaching spaces varied amongst the universities from centrally managed tutorial rooms to design classrooms that were slightly larger with pin-up or projection facilities to dedicated studio facilities that allowed for hot-desking or a greater permanency over the year. Where programs were delivered in the absence of studio facilities, increased attention was afforded to
the teaching methods implemented so as to foster a collaborative bond between class members and create an environment which fostered peer learning. Those teaching within the University model thought it crucial that students had opportunities to develop and practice architectural design skills in class due to the absence and support provided by studio facilities. Those with studio facilities (University hybrid and Discipline) did not articulate its role, it was assumed, and some doubts were growing in Australia due to the perception of poor student engagement.

Another finding from using the studio lens to view education more generally with regard to the influence of massification in restricting resources was that more academics had become exposed to learning theories, even though critics (Anthony, 1991; Budge et al., 2007; Cowdroy et al., 2007; Dutton, 1991; Helle et al., 2006; Webster 2004) query its understanding and influence on practice and scholarly research. This study has shown the need for more partnership to occur between the distinctive discipline-based practices and centralised learning and teaching resources otherwise it may encourage students to more likely adopt a surface approach in their learning (Biggs & Tang, 2011; Budge et al., 2007; de la Harpe & Peterson, 2008; Devlin, 2006; Kember, 1998).

Therefore, the response to RQ4 shows that the studio conditions being experienced by architectural education was not that different from all the other conditions. What may be different is the preference for and employment of discipline-based practices, and specialists were in conflict with the centralised learning and teaching imperatives and systems being adopted by some universities. The general tendency was for academics to maintain these discipline practices and specialist spaces as long as possible before taking a pragmatic approach. In examining the different studio models, it may be that some skills such as decision-making and judgment were less developed in some students attending the University model compared to the others, due to fewer opportunities in tutorials to develop critical reflection skills. In addition, the approaches associated with the University models appeared to increase academics’ workload outside of class time, even though the lecture/tutorial approach suggests an economy. However, there are benefits to be gained from both the University and Discipline models and it appears that there is a gap here for architectural education and presumably other disciplines based on past traditions and methods to study and contribute to the adaption or implementation of learning and teaching theories.
6.6 Future studio directions in Australasia

Drawing together the findings from the research questions (sections 6.2, 6.3, 6.4 and 6.5) the usefulness of the studio lens is revealed. It found that learning and teaching of studio models are significantly influenced by universities’ policies and management systems and, to a lesser extent, the philosophy of the school and responses made to improve student engagement. On the other hand, the accreditation process has had a relatively minimal influence on the actual teaching and facilities, as its primary concern is to determine if national competencies standards are being met (AACA, 2008; AACA, 2015; ANZ_APAP, 2013). Only when significant competencies are unmet may the potential implications of resources and teaching come to forefront (sections 1.2.1 and 5.1.3). The diversification of studio models (section 5.2) in accredited programs indicated that fewer resources and more conventional teaching approaches, such as lectures and tutorials, met the minimum competencies and standards. This raises questions about how the architectural discipline gains a greater role in the future directions of studio models and its implications for architectural education.

Therefore, greater engagement in design pedagogy, instruction and the constructed environment in which to learn is needed, in a more rigorous and scholarly way that is reflective of the present conditions and context rather than sole reliance on past theories such as Schön (1981, 1983, 1985 & 1987) (McClean, 2009; Till, 2005; Wallis & Williams, 2012; Webster, 2004, 2005, 2007, 2008). Fertile space also exists for expanding the role of computing and mobile devices in higher education, in particular with the increased incorporation of Building Information Modelling (BIM) and digital manufacturing in the profession. It would be interesting to know whether these experiences or patterns are paralleled in other profession-related disciplines, and the increased potential of comparison and collaboration. This study shows that the studio is an evolving concept that is being challenged by the changing higher education landscape, as well as its cultural legacy in the architectural education community, and the influence of the higher education landscape over the period of 2007 to 2011 has been significant in Australasia.

6.7 Future research

Future research opportunities presented by this dissertation include refining the typology of studios models in accordance with more recent trends and developments in blended and online deliveries. There would also be value in comparing these studio
models with those occurring overseas and in disciplines other than architecture, as there are similarities in the context and concerns raised by academics (Boling, Schwier, Gray, Smith, & Campbell, 2016; Salama, 2015; Vowles et al., 2012). Such comparison may then be able to contribute to both local and broader international debates about the use and definition of the term studio in the international Charter (UNESCO/UIA, 2011) as their intent to “protect” architectural education may need to be updated in response to the demands of massification and globalisation in higher education. In Australasia there are opportunities for further research on the influence of the accreditation process on studio models and design teaching in Australasia, particularly in an environment where flexible delivery is being developed and used to obtain further economies but also the capacity of learning by distance. The potential risks involve the reliability of assessing student work as a true reflection of their learning, particularly when the reduction of resources promotes the tutor providing the answer and less time for critical reflection and feedback. It also includes the potential risk that a two-tier system may develop between University and Discipline models, put simply where one school is more affordable, accessible and caters for a mass of students, and the other costs more, employs discipline-based practices and holds a higher status in the profession. It was clear from the study’s findings that the clout and influence of the academy and the profession was minimal towards design teaching and the studio forms in a significant proportion of universities. In addition, it would be useful to compare the results of existing government data such as the Australasian Survey of Student Engagement (AUSSE), the Course Experience Questionnaire (CEQs) and the New Zealand equivalents with the studio models.

The second key research area is the current role of studio facilities in design learning and teaching in Australasia, as well as the emergence of alternative practices occurring due to the absence of studio facilities. In particular, identifying the factors that may lead to the development of a positive studio culture would be beneficial, as there are minimal recent studies that report on this within the design classroom space. In addition, how students engage with studio facilities in Australia and New Zealand, as a number of Australian schools reported students were disengaged.

6.8 Conclusions

This, the final chapter of the dissertation, has responded to the aim of this study to understand how the studio concept and forms were responding to the changing higher education landscape in Australia and New Zealand over the period of 2007 to 2011, as
it was identified to be at the greatest risk in architectural education (Ostwald & Williams, 2008a & b). The research builds on the Australasian studies (Ostwald & Williams, 2008a & b; Zehner et al., 2009) that defined the architectural studio, however what remained unanswered was: how is the term studio conceptualised within architectural education in the Australasian context? (RQ1), what are the factors that have led to the diversity of studio models in Australasia? (RQ2), what are the implications that arise from having the diversity of the studio models? (RQ3) and what does the focus on the studio reveal about architecture education and its conditions in Australasian universities? (RQ4). These were important first questions to answer in order to be able to develop a response to the future directions of the studio concept as its forms may become unrecognisable from a liberal-based arts education. The issues of diversification in studio models and their implications are not easy to qualify or capture but it is necessary for architectural education and the profession to debate them, otherwise the institutional climate may have more influence. However, this study has shown that both positive and negative implications may occur, and has identified the need for academics to better understand the influence of institutional climate and the changing higher education landscape in order to contribute to the debate.


OECD. (2010). *Education at a glance: OECD indicators 2010*. Retrieved from [http://www.oecd.org/document/52/0,3343,en_2649_39263238_45897844_1_1_1_1,00.html](http://www.oecd.org/document/52/0,3343,en_2649_39263238_45897844_1_1_1_1,00.html)


Ostwald, M., & Williams, A. (2007a). Selected transcripts from interviews with academic managers and academic focus groups on the 'studio'.

Ostwald, M., & Williams, A. (2007b). Interview schedules used with academic managers and academic focus groups on the 'studio'.


Appendix 3.1  Ostwald and Williams's (2008a) data sample (Papua New Guinea has been excluded due to insufficient data)

Table A: Schools of Architecture in Australia and New Zealand providing a recognised pathway to registration in 2007 (Ostwald & Williams, 2008a, p. 28)

<table>
<thead>
<tr>
<th>Country</th>
<th>State, Territory or Area</th>
<th>University or Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Capital Territory</td>
<td>University of Canberra</td>
</tr>
</tbody>
</table>
|               | New South Wales           | University of Newcastle  
|               |                           | University of New South Wales  
|               |                           | University of Sydney  
|               |                           | University of Technology Sydney  |
|               | Northern Territory        | Charles Darwin University                                   |
|               | Queensland                | Queensland University of Technology  
|               |                           | University of Queensland                                  |
|               | South Australia           | University of Adelaide  
|               |                           | University of South Australia                              |
|               | Tasmania                  | University of Tasmania                                       |
|               | Victoria                  | Deakin University  
|               |                           | RMIT University  
|               |                           | University of Melbourne                                   |
|               | Western Australia         | Curtin University of Technology  
|               |                           | University of Western Australia                            |
|               | New Zealand               | North Island  
|               |                           | University of Auckland  
|               |                           | Victoria University of Wellington                          |
|               |                           | UNITEC Institute of Technology                               |
### Table B: Participants’ numbers in interview and focus groups

<table>
<thead>
<tr>
<th>Type</th>
<th>Participant group</th>
<th>Total Participants</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview</td>
<td>Academic managers</td>
<td>39</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td>Focus Group</td>
<td>Academic staff</td>
<td>73</td>
<td>49</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>112</td>
<td>82</td>
<td>30</td>
</tr>
</tbody>
</table>

### Table C: Types of data collection held at each school

<table>
<thead>
<tr>
<th></th>
<th>1hr Interview</th>
<th>2hr Focus Group</th>
<th>No. of ‘Studio’ Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Managers</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Academic staff</td>
<td>-</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>
Appendix 3.2  Approved variation and original Human Ethics application H-496-0607, including protocols for research involving participants

HUMAN RESEARCH ETHICS COMMITTEE

Notification of Expedited Approval

To Chief Investigator or Project Supervisor:  Professor Michael Ostwald
Cc Co-investigators / Research Students:  Associate Professor Anthony Williams
                                     Ms L Wallis
                                     Miss Sascha Fuller
Re Protocol:  Identification of teaching and instructional issues and opportunities for architecture and associated disciplines
Date:  03-Sep-2009
Reference No:  H-496-0607

Thank you for your Response to Conditional Approval submission to the Human Research Ethics Committee (HREC) seeking approval in relation to a variation to the above protocol.

Variation to:

1. Reactivate the project for the purpose of initiating a 4th phase of the project. Phase 4 will further investigate 'the studio' findings regarding its changing role in architectural education in Australasia and collect data on innovative teaching practices by using semi-structured interviews with academics.

2. Update the role of Louise Wallis in the research team from co-investigator to PhD student researcher.


Your submission was considered under Expedited review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is Approved effective 03-Sep-2009.

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal Certificate of Approval will be available upon request.

Associate Professor Alison Ferguson
Chair, Human Research Ethics Committee

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Human Research Ethics Administration

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The University of Newcastle
Callaghan NSW 2308
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F +61 2 492 17164
Human-Ethics@newcastle.edu.au
# HUMAN RESEARCH ETHICS COMMITTEE

## Certificate of Approval
for a research project involving humans

**Applicant**

<table>
<thead>
<tr>
<th>Chief Investigator/Project Supervisor: (First name and affiliation)</th>
<th>Professor Michael J. Cetniewski</th>
</tr>
</thead>
</table>
| Co-Investigators/Research Students: | Associate Professor Anthony Williams  
| | Ms. Louise Wallis  
| | Ms. Sasha Fuller |
| **Project Title:** | Identification of teaching and instructional issues and opportunities for architecture and associated disciplines |

In approving this project, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Research Involving Humans, 1999, and the requirements within the University relating to human research.

**Details of Approval**

<table>
<thead>
<tr>
<th><strong>HREC Approval No:</strong> H-096-0907</th>
<th><strong>Date of Approval:</strong> 14 June 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approval valid for:</strong> 5 years, or until project ceases, whichever occurs first.</td>
<td><strong>Progress reports due:</strong> Annually</td>
</tr>
</tbody>
</table>

**NOTE:** Approval is granted subject to the requirements set out in the attached document Approval to Conduct Human Research, and any additional comments or conditions noted below:

20 June 2007
Approves
The Committee ratified the approval granted under the provisions for L2 expedited review on 14 June 2007

Signed for the Committee:  ____________________________  
Ms Ruth Gibbins  
Human Research Ethics Officer (Acting)
Excerpt from original human ethics application on protocols for research involving participants.

### PART B1 - PROJECT

**Project Title**
Identification of teaching and instructional issues and opportunities for architecture and associated disciplines.

### PART B2 - CHIEF INVESTIGATOR or PROJECT SUPERVISOR if student research

| Name (Title / given name / family name) | Professor Michael J. Ostwald |
| Qualifications | DSc Professor of Architecture |
| Staff # (or external organisation) | 223496 |
| School & Faculty / Division | School of Architecture and Built Environment Faculty of Engineering and Built Environment |
| Mailing address | The University of Newcastle Callaghan, NSW 2308 |
| Contact Phone / Fax | (02) 49215776 |
| Email | Michael.Ostwald@newcastle.edu.au |

### PART C - IDENTIFICATION OF ETHICAL ISSUES

<table>
<thead>
<tr>
<th>C1 Will participants be quoted or identifiable, either directly or indirectly, in reporting of the research?</th>
<th>Yes Go to D1</th>
<th>X</th>
<th>No Go to C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2 Are adult participants who will not be competent to give consent expected to be recruited?</td>
<td>Yes Go to D2</td>
<td>No Go to C3</td>
<td>X</td>
</tr>
<tr>
<td>C3 Will children or young people &lt; 18 years be involved?</td>
<td>Yes Go to D3</td>
<td>No Go to C4</td>
<td>X</td>
</tr>
<tr>
<td>C4 Are the potential participants in an unequal relationship?</td>
<td>Yes Go to D4</td>
<td>X</td>
<td>No Go to C5</td>
</tr>
<tr>
<td>C5 Will data banks or human tissue banks be accessed for the research?</td>
<td>Yes Go to D5</td>
<td>No Go to C6</td>
<td>X</td>
</tr>
<tr>
<td>C6 Does the research involve physically invasive procedures?</td>
<td>Yes Go to D7 then Go to C7</td>
<td>No Go to C8</td>
<td>X</td>
</tr>
<tr>
<td>C7 Does the research involve collection, extraction or use of human tissue (including cell lines), blood or other body fluids?</td>
<td>Yes Go to D8 then Go to C9</td>
<td>No Go to C10</td>
<td>X</td>
</tr>
<tr>
<td>C8 Is there a risk of physical injury to participants?</td>
<td>Yes Go to D9</td>
<td>No Go to C11</td>
<td>X</td>
</tr>
<tr>
<td>C9 Might the research involve pain or discomfort for participants?</td>
<td>Yes Go to D10</td>
<td>X</td>
<td>No Go to C11</td>
</tr>
<tr>
<td>C10 Might the research cause participants psychological or emotional stress?</td>
<td>Yes Go to D10</td>
<td>X</td>
<td>No Go to C11</td>
</tr>
</tbody>
</table>
PART D – ELIGIBILITY FOR EXPEDITED REVIEW L2

Only complete the questions in this part if instructed to do so on the basis of a response to a question in Part C.

D1  
D1a  Is prior warning given to potential participants that they may be identifiable or quoted?  
Yes  Go to D1b  
No  Go to D1a then D3

D1b  Will specific consent for identification/ quoting be obtained?  
Yes  Go to D1c  
No  Go to D21

D1c  Are there strategies for participants to confirm their consent?  
Yes  Go to C2  
No  Go to D21

D2  
D2a  Will consent be sought from a “person responsible”?  
Yes  Go to C2  
No  Go to D1a then D3

D3  
D3a  Will parental / carer consent be sought?  
Yes  Go to D3b  
No  Go to D19 then D3b

D3b  Will the consent or assent of the children / young people be sought?  
Yes  Go to D3c  
No  Go to D19 then D3c

D3c  Are children / young people a focus of the research?  
Yes  Go to D3d  
No  Go to D3d

The University of Newcastle Human Research Ethics Committee – Initial Applications - Expedited Review 3 of 24
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D3d</strong> Is the research contrary to the best interests of the children/young people?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D4a</strong> Will the recruitment process address the issues with respect to the dependent relationship?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D4b</strong> Is recruitment of people in the dependent relationship essential for the purposes of the research?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D4c</strong> Is it a captive relationship?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D5a</strong> Is the data/issue held in identifiable or potentially re-identifiable form?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D5b</strong> Is there existing consent from the individuals that covers this research?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D6a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D6b</strong> Will there be appropriate screening of potential participants to identify those at higher risk?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D6c</strong> Will procedures be conducted by experienced and appropriately licensed/accredited person(s)?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D6d</strong> Will there be compliance with relevant safety procedures?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D7a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D7b</strong> Will there be appropriate screening of potential participants to identify those at higher risk?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D7c</strong> Is the exposure likely to have a significant impact on participants or be potentially life threatening?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D8a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D8b</strong> Will there be appropriate screening of potential participants to identify those at higher risk?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D8c</strong> Will procedures be conducted by experienced and appropriately licensed/accredited person(s)?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D8d</strong> Will there be compliance with relevant safety procedures?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D9a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D9b</strong> Will there be appropriate screening of potential participants to identify those at higher risk?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D9c</strong> Is the exposure likely to have a significant impact on participants or be potentially life threatening?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D10a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D10b</strong> Will there be appropriate screening of potential participants to identify those at higher risk?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D10c</strong> Is the exposure likely to have a significant impact on participants or be potentially life threatening?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D11a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D11b</strong> Will researchers have a duty of disclosure?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D12a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D12b</strong> Will the information be identified or re-identifiable?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>D13a</strong> Is prior warning given to potential participants?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>D14</td>
<td>D14a</td>
<td>Is prior warning given to potential participants?</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>D15</td>
<td>D15a</td>
<td>Is the observed activity something which generally occurs in public?</td>
</tr>
<tr>
<td></td>
<td>D15b</td>
<td>Will participants be identifiable?</td>
</tr>
<tr>
<td>D16</td>
<td>D16a</td>
<td>Is the deception or limited disclosure likely to harm participants or compound the risks associated with the research?</td>
</tr>
<tr>
<td></td>
<td>D16b</td>
<td>Have alternatives involving full disclosure been considered?</td>
</tr>
<tr>
<td></td>
<td>D16c</td>
<td>Will participants be given full and prompt disclosure and debriefing after their participation?</td>
</tr>
<tr>
<td></td>
<td>D16d</td>
<td>Will participants have the option of withdrawing their data once the deception is disclosed?</td>
</tr>
<tr>
<td></td>
<td>D16e</td>
<td>Following debriefing are participants likely to regard the research as justified and acceptable conduct?</td>
</tr>
<tr>
<td>D17</td>
<td>D17a</td>
<td>Are there ethics or other approval processes in the overseas country?</td>
</tr>
<tr>
<td></td>
<td>D17b</td>
<td>Are the proposed recruitment and consent methods, and remuneration (where used) acceptable to the local culture and its beliefs and practices?</td>
</tr>
<tr>
<td></td>
<td>D17c</td>
<td>Are there social, educational or other factors that may compromise free and informed consent?</td>
</tr>
<tr>
<td></td>
<td>D17d</td>
<td>Will participants be given a local contact for questions or complaints?</td>
</tr>
</tbody>
</table>

| D18 | D18a | Can the risks be easily negated, minimised or managed? | Yes | Continue | X | No | Go to D21 |

**Details**
Provide details for each Part C. or Part D question that directed you to D19. Then return to that question and continue.

**Question [C10]:**
Academics in the in-depth interviews or focus groups may feel emotional and psychological stress if they feel that stress, being overwhelmed, having too many students and too little time are factors in their day to day teaching lives. They may also feel exhausted and/or stressed if they feel that they are being harassed or discriminated against in the workplace. Likewise, students may feel emotionally stressed when talking about their university experiences or workload. These are risks which will be easily negated, minimised or managed due to a number of risk minimising and management practices.

If participants in the in-depth interviews are perceived to be becoming emotionally stressed or traumatised, the interview will offer verbal comfort, give them time to feel composed and aid that are of questioning. The interviewer will minimise this risk by not directly asking questions relating to stress in the workplace or teaching environment. If the participant feels the above issues are relevant to education and teaching or learning in architecture, these are issues that they will broach. However, if it is clear that the participant is becoming stressed and emotional the interviewer will direct them to consult their university counselling service.

If focus group participants become stressed, emotional or uncomfortable, the participant will have the option of discontinuing their participation in the discussion and will be directed to contact their university counselling service if the need arises. However, the focus group is designed to allow staff members and students to share their thoughts and experiences which may in fact provide support for stressful and emotional issues.

Below is a list of the counselling services provided for staff members and students at each university in Australia and New Zealand. If focus groups and interviews do take place in Papua...
New Guinea, a local contact. Professor Rahim Milani will be provided.

- Queensland University of Technology and the University of Queensland: Indicent Assist Programs 1600 808 374
- The University of South Australia: Jennifer Schaffer (08) 83021231
- The University of Adelaide: 1800 020 521 or (08) 84224255
- The University of Western Australia (08) 64881119
- Curtin University of Technology: 1800 199 008 or (66) 92291111
- The University of Melbourne (03) 83449377 or (03) 83449286
- Deakin University: (03) 92446299 or (03) 92449001
- RMIT: Independent - Occupational Services Australia (OSA) (03) 95583000 or 1300 361 008
- The University of Canberra: Independent - OSA 1300 361 008
- The University of Tasmania: 1800 650 204
- The University of Newcastle: (02) 49218201
- The University of Sydney: (02) 93517885
- The University of New South Wales: (02) 93558418
- The University of Technology: Sydney: (02) 95141117 or (02) 95149342
- Charles Darwin University: (08) 89411752
- Unitec New Zealand - 064 9 8154321 ext 8150
- University of Auckland 09 3737960 ext 87763
- Victoria University of Wellington +64 4 4633210

Other organisations in the event that a staff member would prefer to access other services:
- Lifeline 131114  www.lifeline.org.au
- Beyond Blue National Depression Initiative (03) 98105100  www.beyondblue.org

Question [D11b]:
All staff members and students will be warned that if they discuss their involvement in any criminal activity, there will be a duty of disclosure which will override confidentiality and they will be reported to the appropriate authorities. This will be outlined in the consent form and again repeated at the beginning of each interview. Criminal or civil activities when a staff member or student at a university may disclose due involve theft, inappropriate relations with staff/students, plagiarism and embarrassing their own qualifications. If any of these matters are discussed, the Chief Investigator of the project, Michael Ostwald, will contact the HREC at the University of Newcastle to report the events. The interview will cease immediately and the participant will be informed of the duty of disclosure. Appropriate authorities such as the police and the university of the staff member will be contacted immediately.

Question [D18c]:
All participants will be informed that their participation is purely of a voluntary nature. No individual will receive any remuneration for their participation. The project is based upon informed consent which is acceptable to the beliefs and practices of the local cultures involved in Australia, New Zealand and Papua New Guinea.

Question [D18d]:
In the event that focus groups with staff and/or students are conducted in Papua New Guinea (PNG), the political situation, current Australian relations and travel warnings will be noted. After considering these factors, a risk assessment will be undertaken. At present the Department of Foreign Affairs’ travel advisory warning to PNG is level three, “high degree of caution”. There will be national elections in PNG at the end of June, this may lead to a politically volatile situation and may impact upon international relations. In the Information Statement for potential participants, the voluntary nature of the project will be emphasised. There is only one school of architecture in PNG, therefore, if the need arises alternative arrangements such as a phone hook-up can be made so that interviews can be conducted without having to travel to the country.
Appendix 3.3  Questions and subtitles removed from Ostwald and Williams’s (2007a) data before coding analysis

What form does the studio take here? (This question was used in all interviews with academic managers and the staff focus groups. The other remaining questions, below, were used in the interview only.)

- A Dedicated Space/Place
- Type of Learning/Teaching – Project-based or Design Emphasis – Type of Work
- A Subject/Organisation Structure (Form)
- Studio Culture
- Issues affecting the studio

What pressures are there on studios?

- Resources – Space, Staff, Facilities, Funding and Time
- Increased class size/Student Numbers
- Administration
- Integration

What issues are confronting studios and their current role in the future?

- Technology
- Studio existence
- Funding
- The Curriculum/Teaching and Learning

What role will IT have in changing the way studios are presented?

- Teaching and Learning – Software and Staff Literacy
- Not an Issue
- Access and Studio Culture

How many hours should you aim for in design studio work?

- Studio culture
- Resources – Time and Increased Student Numbers
- Student Quality
- Not an Issue
Appendix 3.4 Information Statement

FACULTY OF ENGINEERING & BUILT ENVIRONMENT
School of Architecture & Built Environment

Architects Way
CALLEAGHAN NSW 2308

Telephone: (02) 4921 5782
Facsimile: (02) 4921 6913
Website: www.newcastle.edu.au

Professor Michael Ostwald
Dean of Architecture
Email: Michael.Ostwald@newcastle.edu.au

INFORMATION STATEMENT

Information Statement for the Research Project:
Rethinking Architecture Design Studio Teaching in Australasia
Document Version 2, dated 27/8/09

The Research Team

Prof. Michael Ostwald  A/Prof. Anthony Williams  Louise Wallis
Chief Investigator  Principle PhD supervisor  PhD candidate
Tony.Williams@newcastle.edu.au  Louise.Wallis@utas.edu.au

You are invited to participate in the research project identified above which is being led by Prof. Michael Ostwald from the University of Newcastle. The research is part of Louise Wallis' studies at the University of Newcastle, supervised by A/Prof Tony Williams and Prof. Michael Ostwald from the School of Architecture and Built Environment. This project forms part of Phase Four in 'Understanding Architectural Education in Australasia' and follows up on results from the on-line survey and school-based interviews. You have been selected as a potential participant due to your employment as a full-time academic responsible for educating architectural undergraduates in ‘the studio’.

Why is the research being done and who can participate?

The purpose of the research is to gain a better understanding of ‘the studio’ and teaching practices that have developed to work with the increase in student enrolments and the added pressure on resources (physical spaces and staffing). Earlier research from the Phase Three interviews suggests that teaching practices have been developed and tested by a number academics to ensure effectiveness and engagement in these new circumstances. This research aims to investigate a number of these examples identified in Phase Three through more detailed interviews and analysis of the unit outline materials.

What choice do you have?

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. If you do decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data, which identifies you.

What would you be asked to do and how much time will it take?

If you agree to participate in this research project, it will involve:

- two audio recorded interviews for 1 hour each (the first interview will take place face-to-face at your institution at time convenient to you and the second interview will be a month later by telephone);
- the supply of unit outline materials that describe the sequence and structuring of ‘the studio’;
- a guided tour of the studio spaces used; and
• reviewing the accuracy of the interview transcripts with the opportunity to edit or remove any statements made.

What are the risks and benefits of participating and how will your privacy be protected?

There is a potential that your identity may be recognised by immediate colleagues due to the description of the studio in the case study. Your name will be replaced with academic 1, academic 2 or something similar. Identifiers will be removed during the transcribing process. Information which might identify you (directly or indirectly) will not be disclosed without your prior consent. Participants will be asked to sign a release form that grants permission after sighting the intended use of the materials. You will be able to edit or erase your contribution.

Any information collected by the researchers will be stored securely in a locked cabinet in the School of Architecture and Built Environment, University of Newcastle. Digital files will be secure on a password-protected laptop. Only the research team will have access to these materials. The materials will be retained for 5 years and then destroyed.

The benefits in participating in this project are the opportunity to critically reflect on teaching and learning practices used in the studio and potentially recognise future possibilities.

How will the information collected be used?

The data you provide will be presented in the form of PhD thesis, journal articles and conference proceedings. Although direct quotations may be used, individual participants will not be identified in any resulting materials. Participants will be sent a summary of the findings after the research has been completed.

What do you need to do to participate?

Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researchers.

If you would like to participate, please complete the attached consent form and contact Louise Wallis via email (Louise.Wallis@utsa.edu.au). We will then contact you to set up an interview time and place that is convenient to you.

Further Information

If you would like further information please contact Michael Ostwald (Michael.Ostwald@newcastle.edu.au) or Louise Wallis (Louise.Wallis@utsa.edu.au).

Thank you for considering this invitation.

Chief Investigator
Professor Michael J. Ostwald
Dean of Architecture
School of Architecture and Built Environment
University of Newcastle

PhD Candidate
Louise Wallis
Lecturer
School of Architecture & Design
University of Tasmania

Complaints about this research

This project has been approved by the University of Newcastle's, Human Research Ethics Committee, Approval No. H-496-0907.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email human-ethics@newcastle.edu.au. For participants in New Zealand please direct any complaints to your Head of School who will then contact the University of Newcastle’s Human Ethics Committee.
Appendix 3.5  Consent Form

CONSENT FORM

Academic

Consent form for the research project: Identification of teaching and instructional issues and opportunities for architecture and associated disciplines.

Phase Four: Rethinking Architecture Design Studio Teaching in Australasia

Researchers: Prof. Michael Ostwald (Chief Investigator), A/Prof. Anthony Williams (Principal PhD supervisor) and Louise Wallis (PhD candidate)

Consent Statement

I agree to participate in the above research project and give my consent freely. I understand that the project will be conducted as described in the Information Statement/Invitation, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing:

- I consent to participate in a series of two interviews discussing the architectural studio.
- Each interview will last for no more than one hour and will be recorded.

I understand that my personal information will remain confidential to the researchers except as required by law. I have had the opportunity to have questions answered to my satisfaction.

Print name: ____________________________

Signature: ____________________________ Date: ____________________________

Contact Details: ____________________________
Appendix 3.6 Interview schedule for Stage 2: Purposeful sample

STUDIO INTERVIEW SCHEDULE

Semi-Structured Interview Guide
For Invited Studio Academics
(For researcher use only)

Introduction
Thank you for agreeing to participate; ask permission to tape record and explain the participant’s right to stop recording at any time, erase part or all on request; go over the information/consent statement; ask if the participant has any questions.

The purpose and scope of this study
This study follows-on from the first comprehensive national and wide-ranging scoping study on architectural education in Australia, New Zealand and Papua New Guinea that was carried out for the Australia Teaching and Learning Council and the AASA (Association of Architecture Schools of Australasia).

These interviews represent Phase Four of the project; a follow up to the on-line survey that was sent to over 300 people and achieved a response rate of 60% and the school based interviews. Phase Four will specifically focus on collecting more detailed data relating to ‘the studio’ and how teaching practices have evolved with the increase in student enrolments and added pressures on resources (physical spaces and staffing). A few examples have been identified from the Phase Three interviews to follow-up as case studies.

The project has National Human Ethics Clearance (and reciprocal International Human Ethic Clearance).

There is a potential that your identity may be recognised by immediate colleagues due to the description of ‘the studio’ in the case study. Your name will be replaced with academic 1, academic 2 or something similar. Identifiers will be removed during the transcribing process. Information which might identify you (directly or indirectly) will not be disclosed without your prior consent. Participants will be asked to sign a release form that grants permission after sighting the intended use of the materials. You will be able to edit or erase your contribution.

The data you provide will be presented in the form of PhD thesis, journal articles and conference proceedings. Although direct quotations may be used, individual participants will not be identified in any resulting materials. Participants will be sent a summary of the findings after the research has been completed.

BEGIN RECORDING

Interview 1 (1 hour)
Background information:

1. How many years have you taught at this School?
2. How many years have you taught in ‘the studio’?
3. In the past five years what year level or levels have you predominantly taught the studio in?
4. In your role as a ‘studio’ teacher do you manage or coordinate tutors, assistants or student demonstrators?
   Prompt: What does manage or coordination roles involve?
5. Typically, what does your teaching workload involve for a semester? Do you teach other units as well?

Links to Phase Three research

1. In the previous interviews we asked both academic leaders and academic staff what form does the studio have here. We found from the results and the literature review there appears to be a blurring between the definition of ‘the studio’ and the design studio (the unit). Is this your understanding or experience, is there a difference here?

2. In the analysis of participants’ descriptions of the form of the studio, most responses fitted into two of the following categories (show list on printed aide):
   a. Physical workspace for students
   b. Teaching space (a physical space to teach in, a concept and/or a virtual space)
   c. Collaborative peer learning
   d. Teaching approach
   e. Design unit
   How would you describe or define your current experiences here of ‘the studio’, in these broad categories?

‘The studio’

1. How would you describe your typical approach and teaching methods in ‘the studio’?
   Prompt:
   • Strategies to engage students in the studio and/or facilitate peer interaction?
   • Length of the studio sessions – how long and how many in the week?
   • How many staff and how many students?
   • How do you prepare tutors, assistants or student demonstrators prior to the studio sessions?
   • Are appointment lists used or one-on-one tutorials? When are they used?

2. What are your opinions towards collaborative peer learning and its role in the studio?
3. Do you wander or make yourself available in the studio outside dedicated class times?

4. What do you feel are the biggest issues facing your approach to studio today and how you have proposed or thought how to address these?
   Prompt: information technology, class sizes, course structure, the curriculum and course structure, student absenteeism

5. Is your approach to the studio shared or replicated by other academics in your School?
6. The average staff member says that they spend 40% of their time across the year, teaching is this an accurate reflection of your experience?
   (the remaining workload distribution: 27% research, 22% Administration, 11% Community)

Questions

1. Is there anything else you would like to add?
2. Do you have any questions for the researcher?
Interview 2 (1 hour)

Introduction
Thank you for agreeing to participate; ask permission to tape record and explain the participant’s right to stop recording at any time, erase part or all on request; go over the information/consent statement; ask if the participant has any questions.

BEGIN RECORDING

1. After reading the materials you gave me, can you clarify or expand on what...
   means or involves?
   (there may be 4-5 items here to ask)

2. In the development of your studio teaching practices what techniques have you found that were less effective?

3. On reflection does the process or techniques that you have described in your current studio practices borrow or mimic the way that you were taught?

4. What do you believe has influenced or what past experiences have lead to the development of your teaching strategies?
   (prompt: teaching development seminars, reading, conferences, university demands, an experience in the studio)

5. Have you written any referred conference papers or journal articles examining your studio teaching practices?

6. Are there still challenges that you are developing or refining your teaching techniques in the studio?

Future Change

7. What do you believe is the future of the studio in schools of architecture?

Questions

8. Is there anything else you would like to add?

9. Do you have any questions for the researcher?
Appendix 4.1  List of project vehicles employed in the design units for Stage 2.

<table>
<thead>
<tr>
<th>Academic</th>
<th>Discipline</th>
<th>Curriculum</th>
<th>Project Vehicle</th>
<th>Program Level</th>
<th>Unit Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1m¹</td>
<td>Arch.</td>
<td>elective</td>
<td>Housing and the House</td>
<td>UG</td>
<td>double</td>
</tr>
<tr>
<td>S2m¹</td>
<td>Arch.</td>
<td>elective</td>
<td>Urban Design - Waterfront</td>
<td>PG</td>
<td>double</td>
</tr>
<tr>
<td>S3s¹</td>
<td>Arch.</td>
<td>compulsory</td>
<td>Public building on infill site</td>
<td>UG</td>
<td>double</td>
</tr>
<tr>
<td>S3s²</td>
<td>Arch.</td>
<td>compulsory</td>
<td>Own project</td>
<td>PG Final</td>
<td>triple</td>
</tr>
<tr>
<td>T1m¹</td>
<td>Arch.</td>
<td>compulsory</td>
<td>Theatre</td>
<td>UG</td>
<td>single</td>
</tr>
<tr>
<td>T1m²</td>
<td>Multi</td>
<td>compulsory</td>
<td>Parking Day installations</td>
<td>UG</td>
<td>single</td>
</tr>
<tr>
<td>T2s¹</td>
<td>Multi</td>
<td>compulsory</td>
<td>Design foundation</td>
<td>UG First</td>
<td>double</td>
</tr>
<tr>
<td>T2s²</td>
<td>Arch.</td>
<td>compulsory</td>
<td>Mixed use building</td>
<td>PG</td>
<td>double</td>
</tr>
<tr>
<td>T3¹</td>
<td>Arch.</td>
<td>elective</td>
<td>Live project</td>
<td>UG</td>
<td>double</td>
</tr>
<tr>
<td>T3²</td>
<td>Arch.</td>
<td>elective</td>
<td>Urban Design – Commercial Precinct</td>
<td>UG</td>
<td>double</td>
</tr>
</tbody>
</table>
Appendix 4.2  Refereed conference paper 1


Sustaining the studio: A snapshot of academics’ perceptions towards studio in 2007

Louise Wallis, Tong Williams and Michael Ostwald
University of Tasmania and University of Newcastle, Australia

Abstract
The studio is considered fundamental and central to the education of architecture students and yet its meaning is expansive and ambiguous. References to ‘the studio’ date back to 1750s in France, at the Academie des Beaux-Arts and many elements of this studio are still prevalent today.

In 2007, architectural academics in Australasia were asked to define the ‘studio’ and to elucidate the variety of meanings. This paper will report the results of a series of interviews and focus groups about academics’ perceptions of the studio. The paper identifies central themes on the basis of frequency and highlights the differences in practice between institutions. Physical workspace, interestingly, was linked to less than half of the studio descriptions. This percentage increased to two-thirds when associations to teaching spaces and conceptual spaces (learning communities and virtual networks) are included. The other major link made to ‘studio’ and its meaning were to the unit of study in ‘design studio’. This paper investigates why the associated meaning of studio has evolved and blended with design studio from the 1990s to 2007. Other themes to be discussed will include teaching approaches to increase student engagement, and the impact of students’ mobility and reduced contact hours leading to the studio being a day or an event. In conclusion the paper will identify how academics in Australasia are sustaining ‘studio’ according to current demands of the university environment.

Keywords: Studio, design teaching, architectural education, academics’ perceptions.

1 Introduction

Two recent research grants in Australasia have identified that architectural academics have multiple understandings of the term ‘studio’. The grants were awarded through The Australian Learning and Teaching Council (ALTC). The first grant was a scoping study to identify opportunities and problems faced by architectural education in Australasia (Ostwald and Williams). The second grant examined the studio across the creative disciplines (art, fashion, graphic, interior, architecture, etc.) (Forsyth, Zehner and McDermott). This paper explores in...
more detail the data collected for the scoping study and specifically from the interview transcripts describing studio.

The transcripts captured the use and forms of studio in 19 (Australasian) schools of Architecture. Ostwald and Williams defined studio in 2008, to be "typically, both a form of small group, project-centred teaching and a space or place for enculturation in a design profession and its practices." (205). Preliminary findings suggest the meaning of studio has become interchangeable with design studio (Ostwald and Williams 146). The study hypothesised whether the reduction in studio space heralded the expansion of studio references in curriculum titles (design studio) to ensure the identity of studio (18). The study identified three significant issues that academics believe pose problems to the design studio: insufficient studio space, increase in class sizes and insufficient staffing (147). According to the latest data, design studio was the single largest component of the curriculum and typically represented 39% (18 and 139). In the online-survey academics ranked design studio as ‘extremely important’ and above any other curricula item (134).

The second grant has collected data on studio in the creative disciplines by hosting forums. The key topics generated in the architecture discipline were: space, student engagement, integrating virtual technology in the studio, student diversity, staffing, assessment, and curriculum and research (Forsyth, Zehner and McDermott 28). These topics were predictable but what was unexpected were some provocations made concerning whether studio space mattered, had studio environments evolved to engage the current generation of students and what signifies ‘smart’ teaching (effectiveness). These questions were posed by academics that regularly worked with limited flat floor teaching spaces (no studios), large class sizes, and adopted principles of tertiary learning. It appeared, from personal observations, that many participants in the discussion were challenged by concepts that did not rely on physical studio spaces.

1.1 The Australian Context

In Ostwald’s and William’s Understanding Architectural Education in Australasia a number of significant factors are cited from the 1990s that created a new environment for schools of Architecture to operate in. These were: the re-introduction of university fees and the reduction in government funding; an increase in the number of student places offered; increased recruitment of international students from Southeast Asia; Institutes of Technology transitioned to University status and established research; and the development of higher education pedagogy and its evaluation (13). The outcome of these factors combined was the expansion of students studying architecture. An additional 2000 places were created in Australia between 1994-2000 (104). Descriptions of studio and design studio from the early 1990s to the present day illustrate the differences caused by increased class sizes. Design studio was initially described in the 1990s as a remnant link to original approaches to architectural...
education. Generally, students worked in a studio on a design problem, received ‘over the board’ tutelage and presented to peers and a tutor (Maitland 203). This is commonly referred to as the Beaux Arts’ atelier model, where students entered an atelier to study and work under a master (Draper). Many principles from the original model can be observed in current studio practices and the structure of design studio units. These are: the emphasis on the design project; the approach to develop a preliminary solution (equisse) to be further resolved; an environment for students to be enculturated with the profession’s values and norms (Ostwald and Williams 8). Shannon provides another description of studio; to be “a physical space as a site for teaching and learning experiences, and to an interactive culture between the students and staff developed within this physical space.” (8). Shannon’s research also cites Maher’s ideal amount of studio space, 7.5m² per student, tabled in a 1992 discussion paper for the New South Wales RAIA (qtd. Shannon 8).

The percentage of design taught in the schools’ curriculum fluctuated between the ranges of 25% to 75% in the mid 1990s (Ostwald and Williams 25). This suggests a number of approaches were practiced and that studio may have encapsulated many domains of knowledge and skills in some schools. By 2007, no schools of architecture employed a traditional atelier model because teaching was supplemented by lectures or by other large-scale teaching methods. The last form of the traditional atelier model ceased at the end of the 20th century (Ostwald and Williams 19). Studio spaces in Australasia range from: dedicated workspaces, ‘hot-desking’, space for part or one day only, generic classroom/computer laboratory spaces with pin-up and none (Ostwald and Williams 146).

1.2 The United States of America (USA) and the United Kingdom (UK) context

Many of the problems discussed in the Australasian context were also experienced in the USA and UK. In the USA, the Boyer and Mitgang report (1996) identified that architectural education was expensive to run (space and staffing) and did not garner significant research outcomes or grant generation like schools of Science. In the UK, a paper describing the new ‘Portsmouth model’ highlighted the dramatic increase in student numbers in the 1990s, which demanded a new approach to maximize existing staff and 40% less space (Potts 241). Design studio was considered paramount and therefore the teaching approach in areas of technology and history were rationalised to lectures only. Resources saved were redirected to studio. Portsmouth also adopted a vertical studio structure to maintain small group teaching and utilize peer learning. Students from different year levels selected from the same studio offerings. The studios typically contained 36 students, a full-time academic and part-time teaching assistant (Potts 248). Since its restructure in the mid 1990s, the model has managed a doubling of student numbers and a further reduction in space (Potts 251). The vertical studio model is typically associated with the AA school in the UK and RMIT in Australia. These two
examples, the Boyer and Mitgang report (1996) and the "Portsmouth model" illuminate the external pressures generated from the wider university system and its management. Design studio and studio culture have been both lauded and questioned in regard to their educational benefits. The studio model has been highlighted as an excellent teaching method to other disciplines. Schön’s seminal work on reflective learning (1983) used examples in architecture, particularly in the one-on-one desk crit, to demonstrate good practice. This was debated soon after regarding its effectiveness (Rapoport). The Boyer and Mitgang report (1996) proposed that the project based approach and the use of critical and reflective processes were valuable contributions to tertiary education. A lot of international interest and research resulted from the University of Newcastle (Australia) problem based learning model in the late 1980s and 1990s.

In terms of the dominance of design in the curriculum, Cuff elaborated that perhaps this too was its greatest flaw (Cuff 63). Since the shift of architecture education into a formalized university system, debates have arisen regarding the amount of design education versus practical working skills and knowledge in construction and practice. Many academics and practitioners still believe that graduates have inherent deficiencies in their design/decision-making processes due to prioritising design formalism, conceptual thinking and the expansion of theory (Segal; O'Dwyer; Hayes; Egan; Cross; and Branch). A number of damming reports into the construction industry and architecture in the UK led academics to express that emphasis on the design product, rather than the process, was to the detriment of architecture education (Nicol and Pilling 10). Research shows that in Australasia, studies in professional practice have reduced over the past 20 years and theory and research has increased (Ostwald and Williams 131-132). In addition, graduates in Australia have evaluated their courses poorly in Course Evaluation Questionnaires (CEQs) due to their concerns of being under prepared for work (Murray).

The presumption that studio culture was beneficial and positive has also been debated. A number of articles and reports in the USA by academics and students questioned the costs to students’ health, education and connection to society, due to the inordinate amount of time spent in the studio and enculturation process (Bachman and Bachman; AIAA Studio Culture Report; Temkin; Monaghan; and Fisher). In the UK, respected architecture educator George Henderson concurred, observing that studio was difficult to sustain and make attractive when staffing, funding and access has been reduced and students were combining study with paid work (cited in Leon). This article also speculated the conditions in Australia were different as students were disconnected from the campus as they lived at home and therefore, studio became a timetabled discussion.

In summary, the change in the university environment to a more business-like model, requiring a new level of accountability, has lead to a blurring between studios and design studios, but also a new level of inquiry. The pressures exerted by the growth in student numbers and the expansion of the academic duties has caused shifts. These
conclusions may seem obvious, but how they manifested in the schools in Australasia has not been researched. The research question is to identify the different definitions and practices of "the studio" from 2007. This paper and subsequent doctoral work seeks to establish the current positions of "the studio" and to support future developments in design studio teaching.

2 Method

The approach adopted for this paper draws from interpretative ethnographic methodologies to capture and understand lived experiences (Denzin). The transcripts were analysed by looking for re-occurring patterns of discussions that gave in-depth understanding of beliefs and practices using the QSR NVivo database (Geertz 27). Analysis of the data was also consistent with the grounded theory approach in that the audio recordings were transcribed and then categorised by making comparisons (Creswell). Codes were identified from the thematic analysis of transcripts using standard qualitative data analysis guidelines, and later structured into primary, secondary and tertiary level codes (Table 1).

<table>
<thead>
<tr>
<th>Primary Codes</th>
<th>What is studio?</th>
<th>Studio Characteristics'</th>
<th>What hinders studio?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary/ Tertiary Codes</td>
<td>Space</td>
<td>Space characteristics</td>
<td>Commuter campus</td>
</tr>
<tr>
<td></td>
<td>Physical student workspace</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching method/approach</td>
<td>Studio culture</td>
<td>Time contact with staff unit percentage and value in the course</td>
<td></td>
</tr>
<tr>
<td>Design Unit</td>
<td>Integration of computing Facilities BIM</td>
<td></td>
<td>Student employment needs</td>
</tr>
<tr>
<td>Collaborative/ peer learning (includes reference to studio culture)</td>
<td>Time Accessibility to space</td>
<td>Staff availability</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Coding themes

The interviews captured 37% of the 300 identified full-time architecture academics. The sampling is considered valid as there are more benefits gained from a modest number of participants across all schools providing a rich and in-depth data than the superficial responses.
from many (Patton). Participation by the 39 academic managers (Head of Schools and Program Heads) and 73 academic staff was voluntary (Ostwald and Williams 38). Academic managers were interviewed individually and the remainder of the academic staff were invited to the focus group session. Open ended questions and prompts were used to ensure participants had opportunities to explore new areas of discussion as well as discuss the initial prompt (Creswell). For example, an open-ended question posed to academic managers was “What form does the studio have here?” In the focus groups a greater number of questions and prompts were used to gain an understanding of local perceptions of studio. It was thought that this group would have more immediate and detailed experiences than their managers. Essentially, both academic managers and focus groups were asked to clarify what form the studio takes or what the term studio means in their schools.

In this paper the results and discussion will focus on the primary code, “What is studio?” The themes identified were: space; collaborative/peer learning; teaching approach/delivery; and design unit. Space was further distinguished into two parts, physical student workspace and teaching space. Physical student workspace included references to dedicated studio spaces as well as studio spaces available for a day. Teaching space referred to a physical space to teach in, a concept and virtual space. An example: “Not a place. It is a site for learning. They are classrooms not an individual place with ownership. The studio is an intellectual rather than a physical place.” (South Australia – academic manager, SA-am). Collaborative/peer learning refers to interaction and discussion amongst peers and with tutors, a “learning community”. References to studio culture were also placed in this category. Teaching approach/delivery included descriptions of studio based teaching methods, whereas design unit referred to the actual teaching unit and identified its size and number of contact hours.

3 Results and Discussion

The form or the term used for studio solicited a variety of responses and most descriptions were composed of two parts. There were very few that were made by one or three associations. In total, there were five main parts identified: Physical workspace for students, Teaching space, Collaborative/peer learning, Teaching approach, and the Design unit (examples are discussed later in the paper). Matrix 1 shows the position of the participants’ responses (n=44) according to the five parts. Where a third association was identified, this was noted on the matrix in superscript. Less than half of the respondents associated studio with a primary place for students to work in during and outside of class (45%). An equal number of respondents described studio as being linked to the design unit, outlining the number of contact hours and class size. More than a third of responses contained an association to collaborative/peer learning or teaching approach/delivery (36%). The smallest response was for teaching space.
### Matrix 1: Academic managers and focus groups' definition of studio

The most accepted description of studio contained references to the space that students work in and the advantages gained from peer learning; essentially the studio culture (23%). These descriptions predominantly originated from New Zealand and from small to mid-size schools in Australia. The New Zealand schools (3 in total) described the importance of studio and were grappling with how to maintain it. The staff focus groups highlighted the pressures of maintaining studio in terms of sufficient space and time to teach students, far more than the...

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**Key:** am = academic manager, staff = academic focus groups and REG = Charles Darwin University, Deakin University, Newcastle University, University of Canberra and the University of Tasmania

<table>
<thead>
<tr>
<th>A. Physical workspace for students</th>
<th>B. Teaching space</th>
<th>C. Collaborative/peer learning</th>
<th>D. Teaching approach</th>
<th>E. Design unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = 20</td>
<td>Total = 9</td>
<td>Total = 16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSW-am</td>
<td>NSW-am</td>
<td>NSW-staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA-am</td>
<td></td>
<td>QLD-staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REG-staff</td>
<td></td>
<td>VIC-staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REG-am ({x}2)</td>
<td></td>
<td>REG-staff (x)3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REG-staff</td>
<td></td>
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</tr>
</tbody>
</table>

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**Sustainable theory/ theorizing sustainability**

Proceedings from the 5th International Conference of the Association of Architecture
Victoria University, New Zealand, 4-6 September 2009

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academic managers. The growth in student numbers in New Zealand has been more dramatic when compared to the trends in Australia and occurred four years later in 1999 (Ostwald and Williams 104). Two of the schools had enrolments in the 490s and the other was 300 (RAIA). Another potential factor, which has supported studies in New Zealand, is the greater number of hours allocated to the design unit. The transcripts suggested around 10 to 12 hours per week were spent in design studio by some academics. The on-line survey found that ideally academics would like 6 or more hours to spend with 18 students per week in the design studio. In the New Zealand schools the students to staff ratios (SSRs) are also far better than in Australia. In 2006, Australia’s SSR was 24:1 and New Zealand was 17:1 (Ostwald and Williams 114).

In comparison, the schools in Australia that suggested the importance of studio and peer learning, typically had smaller student enrolments. Their enrolments generally ranged from 200 – 400 students (RAIA). Only two of these responses, were outside this premise. When the larger schools (enrolments from 460 to 664) were analysed their responses did not require studio space. “The studio is a type of delivery rather than a physical space.” (NSW-staff). The exceptions were three Heads of School, and they differed from their colleagues’ descriptions. In general, Heads of School were more optimistic in their tone than the staff focus groups.

A number of the schools that appeared to have significant studio spaces had two primary concerns. The first concerned the utilization of studio space, “...itis mainly empty again” (NSW-am). Their studio space was under utilized and questioned how to engage students in the practice of studio, particularly when students combined paid work with study. “As long as I can get a job I don’t need you” (VIC-staff). While others felt that the art of studio culture had not been lost but funding was no longer available.

The art hasn’t been lost. If there’s a reason for students to be together and get feedback from each other and from staff, they’ll be there. If there’s not, they won’t be there. So I see the problem as being more to do with staffing and therefore the budget than with facilities or changes in directions... (SA-am)

The second concern related to the effectiveness of over-the-board tutelage and one-on-one techniques used in studio teaching. It was felt that this technique was not as effective due to the repetition of comments to individual students and that this emphasis on each student would counteract efforts to encourage peer learning. They felt strongly that the “luxurious” studio space had led to complacency in studio teaching delivery.

What I see happening is that rather than encourage alternate forms of education that is the studio might be a space where all sorts of flexible or informal arrangements might occur: small group learning, student based delivery, peer to peer teaching.

What I see is that tutors follow students around repeating the same didactic lecture over and over and over. Then they sit down six hours later and say I’m really
exhausted as though they’ve done a good days work. (NZ-am)

This last concern is not dependent on space. Other responses indicated similar practices by the making of an appointment list prioritising individual student consultations. This approach also negates the principles of peer learning, exchange and the discussion of many ideas beyond their immediate work. Academics admitted feeling relieved if some students did not turn up or request an appointment. Some ascribed the absence of students and shortness of time spent at university due to it being a commuter campus and students’ mobility to work where they choose with a laptop. One respondent embraced these conditions generating a virtual studio.

The schools without dedicated workspaces may have an advantage as these circumstances have led to the development and testing of techniques in design studio teaching. Essentially, the descriptions indicate the goal to maximize time spent with students in studio by making it a useful event, exercise or workshop that engages the group in discussion and work. One school without studio space thought that students had not been adversely affected as their outcomes were comparable to other schools. Another school indicated that the exercises formed a small part of the assessment outcomes in their portfolio. To devise an exercise or event for each studio session takes more time initially when compared to typical one-on-one tutelage sessions. One-on-one tutelage requires limited or no need to brief sessional staff.

This paper has only just begun to explore the themes in what studio means in Australasia. Respondents indicated that studio practice in their schools “varie[d] from year to year, and also depend[ed] on who’s leading it” (WA-staff). What is evident is the diversity of opinions that exist; for example, one participant thought that past teaching practices were not “some kind of golden age” (SA-am). They thought their own education lacked when compared to practices today. Staff from another region expressed their concern that studio and studio-based teaching may become a ‘Jurassic Park’ and hoped it survived.

4 Conclusions

Studio has shifted in its original meaning for more than half of the schools in Australasia. Less than half of respondents interviewed connected physical workspace for students in their definition of studio. References made to dedicated workspaces were in most cases connected to a lower number of enrolments in the school and most likely the availability of studio space. Small to mid-size schools (200-400), typically regionally based schools in Australia and the New Zealand schools, were found to encourage studio spaces and studio-based teaching. Experimentation in design studio teaching seemed to originate from schools without dedicated studios or workspaces as they were forced to innovate or consider alternatives. The primary use of one-on-one tutorials was seen to be counteractive in establishing peer learning, because students valued and relied solely on their tutors’ opinion. This paper speculates whether the expansion of academics’ roles and responsibilities (particularly in research, increased qualifications and administration) coupled with increases in class sizes quell notions or efforts to design and test new techniques. Future research will investigate some of the techniques briefly mentioned in this paper that engage students and advance peer learning.
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Appendix 4.2  Refereed conference paper 2


The ‘Studio’ conundrum: Making sense of the Australasian experience in Architectural Education

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KEYWORDS: DESIGN STUDIO, THE STUDIO, CRITICISMS, TEACHING AND LEARNING

ABSTRACT

The ‘studio’ is typically viewed as being central to the role of educating architecture students because it facilitates learning during the design process; it encourages the integration of knowledge and skills, and it generates an environment where professional norms and standards are cultivated. The lineage of the ‘studio’ in architectural education extends back to the first ‘university’ courses in the 19th century and before those aspects of the master/apprenticeship model, in the 17th and 18th centuries. A recent comprehensive study of Architectural Education in Australasia (Ostwald & Williams 2006) revealed that definitions of the studio and associated practices were for the most part polarised. In Australia, the studio may physically range from a dedicated workspace — for groups of students to work and learn in — to a hot-desking arrangement, to a generic tutorial space. For some, the studio has ceased to include the physical workspace for students and the approach to teaching design or the reference to the unit of study. Despite this difference of opinion, it is a common assumption that the studio is a familiar and well-understood concept amongst architectural educators. This paper will discuss the new context that the studio operates within and explore the issues and factors that have prompted such quandaries and for some, opportunities to expand the approaches used to teach design. The paper will also draw on, and make comparisons with, with studies from Europe and Northern America.

INTRODUCTION — MYSTIQUE AND MYSTERY

In examining the role and definition of the ‘studio’ in architectural education it is important to acknowledge that the processes of designing and how to teach design are largely based on the profession’s tacit knowledge and experiences and the traditions/rituals developed in Schools of Architecture. Banham (1986) famously described architectural education as a ‘black box’ (299). Outsiders may observe the student entering whom later exists as an architect, but the process that takes place, happens within a ‘secret society’. He provocatively speculates that if the profession dared to interrogate the ‘box’ they may find nothing but mystique itself (299). What is of equal importance is that Banham identifies the studio as the location where this education or transformation takes place, including the formation of attitudes and values through socialisation. The first use of the term ‘mystique/mystery’ comes from Argyris’ (1981:577) description of the architectural design process from a large study of architectural education in the US in the 1970s (Porter & Kilbridge 1981).

In the third edition of How Designers Think, Bryan Lawson (1997) states that since his first edition in 1983 he does not feel that any simple conclusions can be drawn, only some principles. The design process still remains to be fully understood and provides an addictive challenge for researchers; a position supported by Nigel Cross (1996). Lawson and Cross argue that there is no one correct way to undertake the design process, which implies there is probably no one correct way to teach it (Lawson 1997, Dinkin 1989).

The art of design studio teaching in architectural education is largely learnt from one’s own experience within the community and language of architecture.

The ‘studio’ concept and methods in architectural education were significantly influenced and positioned by two schools, the Ecole des Beaux-Arts (Franck) and the Bauhaus (Gropius). It has been suggested that the master/apprenticeship model shares a number of similarities with the ‘studio’ in terms of the working environment, the use of projects and one-on-one interaction, however this theory is contested (Webster 2008:64). For most the formation of the Ecole des Beaux-Arts in Paris in 1819 represented the first dedicated and formal course in architectural education. The significance of the Beaux-Arts model was the atelier (the studio) and associated teaching methods, which were broadly adopted from art-based pedagogy and practice.

The Bauhaus and Modernism gradually took the influence of the Beaux-Arts model and most schools in the UK, USA and New Zealand had a five year course and the same design pedagogy as in the UK. (End of Schools Conference 1950 in Rhythe 1989: 60). The Bauhaus reinforced the central role of design education in the studio environment. There were many important contributions made by the Bauhaus and its teaching masters, the Bauhaus represented stimulus for educational reform. Approaches to the design process were
expanded and technical skills were discovered by experiments and design solutions (Cross 2006: 24, Brunwe 2003, Bunnin 1954 qtd in Beinart 1981: 106).

Essentially, design studio teaching is thought to reflect the constructivist perspective, which proposes that the student constructs and determines their own learning. However, this categorisation is dependent on the approach taken by the facilitator or tutor with the students. Project-based learning is the main approach employed in teaching architectural design (Webster 2004a, Ashon 1997). This approach requires a continual process of critical reflection by the learner and input by other (tutor, peers and external critics). The ultimate goal is to allow the learner to develop a level of confidence to undertake self-directed inquiry and problem solving to generate appropriate and creative solutions. Research into project and problem-based learning does not solicit much information regarding the role of the physical learning environment in student learning. It recommended the space for students to work was more than a classroom or reading space, it needed to allow for a multiplicity of activities, resources and ways to learn individually, in small groups or with the class (Chambers 2007, Adderley et al 1975). There was no explicit link made between the quality of the physical learning environment to improve student interaction and dialogue, which is critical to project, and problem based learning.

This paper highlights the different interpretations made by academics regarding the role and definition of the studio in Australia and the potential influences and impacts resulting. These findings are compared and discussed within the international context. It is noted that this paper represents only a small part of the larger pursuit to identify good practices and make recommendations, however this cannot be utilised without an understanding of what it is, is known (Porter & Kilbridge 1981: viii, Oswald & Williams 2008: 1).

THE "CONTEMPORARY" STUDIO IN AUSTRALIA

In 2007, full-time academics involved in architectural education were asked "What form does the studio have here?" or "What does the term 'studio' refer to here?" These questions were posed individually to 39 academic managers at 19 schools. Academic staff were also invited to participate in separate focus groups where a total number of 73 volunteered (Oswald and Williams 2008: 33). Preliminary findings led Oswald and Williams to hypothesise whether the understanding of 'the studio' had shifted away from either a physical studio space but remains firmly entrenched in the academics' psyche. The term 'studio' was used liberally to describe any manner of things related to design teaching and its curriculum, even when a studio space did not exist (2008: 15). In 2009, an in-depth analysis of this data showed that less than half of responses viewed the studio as a physical workspace for students. Equally, 45% of responses thought the 'studio' referred to the design unit/subject. These represented the highest levels of association with the five themes identified in the data coding process.

The five themes, including examples from the transcripts, were:

A. Physical workspace for students (includes dedicated studio space or for a day),

B. Studio is a dedicated space for the students with significant access. (West Australia – academic manager, WA-am).

C. Teaching space (physical, concept or virtual),

"Not a place, it is a site for learning. They are classrooms not an individual place with ownership. The studio is an intellectual rather than a physical place." (South Australia – academic manager, SA-am)

D. Collaborative/team learning,

"It's not just an idea. It has to be a physical place, it has to be a place where students and staff interact in meaningful ways where ideas are the basis of a discussion and there's a high level of mutual support amongst the students and between the students and staff." (Regional, REG-am)

E. The design unit,

"The studio dominates far too much. Absolutely absurd. The students said there should be more points allocated to design because this is where they spend the majority of their time." (NZ-staff)

It is apparent even in these small excerpts from the data that descriptions of the 'studio' were multi-faceted. The majority of responses were composed of three themes. Very few were made from one or three themes. A two-way matrix was established with the same set of five themes, creating the vertical and horizontal axis to map the position of 44 analysed responses. The method and results were published in the paper, Sustaining the Studio: A snapshot of academics' perceptions towards studio in 2007 (Wallis, Williams & Oswald 2009).

When reading the overall description of the 'studio' (composed of two themes), the most accepted description was the Physical workspace for students and Collaborative/peer learning (23%). This set of responses shared similar characteristics in their geographic position and the size of the school, there was only one exception. All three New Zealand schools were represented in this group as well as the small to mid-size schools in regional Australia. An analysis of mid to large schools of architecture (student enrolments from 460 to 664) showed the majority of their responses were not linked to the theme of physical workspace for students. The three exceptions were all Heads of Schools and their descriptions opposed the descriptions made by their academic staff. Overall, the trend was that the academic managers/leaders were far more optimistic in their tone than academic staff.

These results suggest that small to mid-size schools, mostly in regional areas were better placed to provide physical workspaces for students. However, this does not explain the association with all three New Zealand schools. Two of these schools had 490 student enrolments, which made them larger than some schools in Australia who disconnected the 'studio' concept to a physical workspace. What adds to this anomaly is the fact that New Zealand experienced more dramatic growth in student enrolments than Australia and this took place four years later in 1999. Some of the differences may be explained by the following facts/observations:
A. Number of studio hours per week. The transcripts suggested New Zealand schools had between 10 to 12 hours per week. The on-line survey carried out earlier that year found that most academics thought 6 hours or more a week was 'ideal' to teach 15 students in a design studio, suggesting hours were less.

B. Student/staff ratio. In 2005, Australia's average SSR was 24:1 and New Zealand was 17:1 (O'Neil & Williams 114); and

C. Transcripts described how students actively used and populated studios spaces in New Zealand. One academic manager in Australia talked erroneously about studio culture in New Zealand when compared to their studios, saying, that our's is 'mainly empty again'.

This does suggest that the funding model in New Zealand must be more conducive to design studio teaching than in Australia.

These results basically indicate that for more than half of the responses, the 'studio' was not associated with a specific space or learning environment for students to work in and outside of class time. It was not conclusive whether these descriptions were informed principally by the limited availability of studio workspaces for students. The interest in whether the 'studio' description included references to a physical workspace or not is indicative of the teaching philosophy and sometimes the teaching approach. Part of students learning in the studio workspace comes from their acts of working and socializing, in addition to the formal teaching and learning activities. A lot of the communication observed in the 'studio' and the teaching of design combines verbal, graphic and non-verbal forms of communication. Academics have highlighted that the students' studio tells them a lot or gives them a better context to understand the students' work and learning approach.

Another layer of details evolved in examining the responses related to the studio workspace. A few explained that the provision of the studio workspace did not necessarily lead to usage or the rise of a studio culture. Academics reported that the art of studio culture had not been lost but was hindered by staffing resources and budget constraints. If there's a reason for students to be together and get feedback from each other and from staff, they'll be there. (SA-am)

Irrespective of the provision of studio workspaces some academics perceived that student attitudes to learning had also changed and their level of engagement and commitment to the design studio was less. One staff member summed up the student viewpoint as being, "as long as I can get a job I don't need you" (VIC-staff).

Where the studio workspace was available the typical response was associated with a concern that inadequate resourcing and the increase in student number were making these techniques impractical or difficult to achieve. A few eluded perhaps a new approach or philosophy may need to be developed as they saw that the traditional 'one-on-one' tutoring was ineffective, repetitive and labour intensive. They thought that there might be other opportunities.

What I see happening is that rather than encourage alternative forms of education that is the studio might be a space where all sorts of flexible or informal arrangements might occur: small group learning, student based delivery, peer to peer teaching. What I see is that tutors follow students around repeating the same didactic lecture over and over again. Then they sit down six hours later and say I'm really exhausted as though they've done a good day's work. (NZ-am).

The one-on-one tutoring technique referred to in this quote is associated with most approaches to teaching design, regardless of the availability of studio workspace.

The findings from the 2009 paper (Wallis, O'Neil & Williams) speculated that innovation or changes to teaching practices were more prevalent in schools where resources seemed more reduced. Two out of three innovations identified from the transcripts came from schools, which essentially did not have studio workspaces. These innovations are the focus of further research to gain a better understanding of the approach and what factors influenced this development.

Draft findings presented by the Studio Teaching Project (STP) in Art, Architecture and Design (STP 2009), indicated that there was no strong correlation between innovative design teaching and learning strategies with the availability of a dedicated studio workspace in Australia. The STP learnt from their comparisons of Art, Architecture and Design that academics in architecture expected their students to spend at least 6 hours in the studio per week. This doubled the amount of time identified by academics in Art and Design. (Zebger 2008:6). The architecture students also had the greatest level of 24-hour access to facilities. It suggests that the level of commitment expected of architecture students by academics exceeds the other creative disciplines. These findings suggest a number of hypotheses, that:

- architectural students require more points of inputs or time with their tutor and peers to learn the practice of architectural design or
- the increased number of architectural students in a class compared to Art and Design means that the number of hours associated to teach, tutor and review students is larger or
- architectural students are expected to spend longer hours in studio during class and outside of class than Art and Design due to the discipline culture; or
- maybe a combination of the hypothesis above.

The STP team also identified that the studio had four critical and interdependent elements, which included: a culture, a mode of teaching and learning, a program, project and activity, and a physical space or constructed environment (STP 2009:1). Early published papers by members of the STP did not explicitly express the need for a physical space or constructed environment (de la Hopper & Petousis 2008 in Zebger 2008:2) or suggested it was difficult to maintain or achieve studio spaces in the current university climate and questioned whether the quality of work had noticeably suffered (Zebger 2008). The diversity of the descriptions whether the physical space or the constructed environment is included in the description of the 'studio' reflects the diversity of the STP team in their backgrounds, institutions, and discipline cultures. One other hypothesis generated from the STP (2009) toolkit containing case studies of good studio practice is the presence of examples that involve large classes and the use of studio spaces. Most examples that incorporated the physical studio space were
small in class size or to ensure a manageable class size they were offered as electives.

II. THE INTERNATIONAL CONTEXT

There is little discussion regarding the validity and need for the 'studio' workspace apart from the UK. It is unclear whether architectural education in other countries shares these concerns or face similar economic conditions/ rationalization of space as in Australia, New Zealand and the United Kingdom. The focus of research from the US and UK principally relates to the effects of studio culture, design critiques, one-on-one tutorials and the role of ESD in design. Most literature into architectural education fall into two categories: a description of an academic's studio structure and product outcomes and secondly, the critique of 'traditional' teaching practices and the argument for practice to be informed by research than habit.

An overview of the topics that have emanated from the UK regarding the provision and role of the studio space in architecture education (Leen 2004, Duggan 2004, Pitts 2000 and Ashton 1997) resembles the debates within Australasia. In many cases, dedicated studio spaces have been transformed into hot-desking arrangements, which permit students in a studio class to set-up for the day, or a session. A few schools have managed to extend their facilities (Leen 2004, Duggan 2004, Pitts 2000). Other factors that have been highlighted is the impact of technology, more students having part-time jobs, the diversity of students studying architecture and the question whether studio culture provides more negative effects than positive (Leen 2004). References to the role and value of studio culture drew from research in the US (Anthony 1991, Dutton 1991 & Koth et al 2002). It is noted that this type of research and findings were presented earlier in the US (Porter & Kilpatrick 1991) but ignored (Dulham 1997). The reference to technology indicated how wireless laptop computers had hastened the attitude to 'drop-in' to the studio than 'live-in'. As to how the digital environment or the digital studio has impacted has not been investigated yet.

An observation and empirical study carried out in a number of UK schools in 1997 found that academics perceived cramped and shared studio facilities as affecting students' attention (Ashbon). The case studies showed that this was not significant or contributing factor, what was identified was the way the teacher engaged and supported group work and participation. Not unlike the reference made earlier in Australian transcripts that if students have a reason and gain benefits, they will be present and active (SA-am). In the case studies the 'traditional' studio space had the least attendance whereas the most cramped and unsatisfactory studio space had the greatest level of participation, which begins to illustrate the complexity and interconnectedness of issues related to student motivation and engagement. The emphasis of the 21st century learning has moved to the student experience and what they do.

This paper shows how the traditions of design studio learning have maintained time, but also how they have responded by small shifts and adaptations. For example, the simulation of project works in the Beaux-Arts studio, which was viewed radical in its time from the master apprenticeship model and later the American adaptation of the studio. The data from Australasia indicates that the current conditions within universities are generating at least two distinct different in academia perceptions of what form does the 'studio' take, which suggests that different approaches may be evolving, but are they? Does the one-on-one tutoring model exemplified by Schon (1983, 1985, 1987) operate within both of these contexts, of student studio workplace or not? The STC research in Australasia has also recorded the tension and difference in philosophy and value awarded to the studio workspace. The fact that architecture students are expected to spend more time in and outside of class time within the studio suggests the influence of the discipline culture? The UK experience indicates similar struggles in maintaining and providing adequate studio workspaces and concerns about student motivation/engagement. Many more questions have been raised in the UK regarding the studio workspace's role and approaches used in the studio, for example the effectiveness of tutors and the one-on-one tutoring role (Webster 2008, Ashton 1997, Beinart 1981). These will be the focus of future papers in the identification of different approaches evolving in Australian practice. What approach and techniques will encourage students to take more personal interest and responsibility in their learning, without employing the 'brick', and work effectively in the current environment? There is no one correct approach to designing, hence the room and the need for more than one approach to teach design studio. Tradition and uncertainty should not displace inquiry and debate into the 'studio' and student-centered approaches.

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