CURRICULUM DEVELOPMENT IN STUDIO TEACHING

Volume One: STP Final Report

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Volumes

This volume (Volume One) is part of a series titled: Curriculum Development in Studio Teaching. Volumes in this series include:

Volume One	STP Final Report Robert Zehner, Graham Forsyth, Elizabeth Musgrave, Douglas Neale, Barbara de la Harpe, Fiona Peterson and Noel Frankham, with Stephanie Wilson and Karin Watson
Volume Two	STP Academic Survey Report Barbara de la Harpe, Stephanie Wilson and Robert Zehner, with Fiona Peterson and Noel Frankham
Volume Three	STP Head of School Survey Report Noel Frankham, Stephanie Wilson, Graham Forsyth and Robert Zehner
Volume Four	STP Case Studies of Effective Practice Stephanie Wilson and Karin Watson (eds)

There is also an online toolkit associated with these volumes for studio teachers: www.studioteaching.org

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Executive Summary

The broad discipline areas that are the focus of the Studio Teaching Project encompass a wide range of studio settings from artists with easels and potting wheels, to architects with drawing tables and, increasingly, laptops, to graphic designers in computer laboratories. Whatever the discipline and whatever the setting, the essences of the studio are seen to include creative and reflective thinking, a focus on integrative design in the context of a project, and an opportunity to absorb the culture of one's chosen area of endeavour.

While physical studio settings do differ, they tend to be notably more resource intensive – in terms of space, staff, workshops, equipment – than many university degree programs. As funding sources have tightened across the university sector in recent years, anecdotal stories of resource pressures and cutbacks in the studio teaching area have become more and more widespread. In that context, concerns about the viability of familiar approaches to studio teaching have led naturally to questions about exactly what contributes most to successful studios; what characteristics are most important to retain? In addition, increasing Government and university expectations of accountability in terms of outcomes, teaching strategies employed, assessment criteria and the like, have also put pressure on a form of teaching which has its roots in the relatively unstructured space of the traditional studio.

Focus of the Study and Primary Data Sources

The focus of the Studio Teaching Project is the identification, description and investigation of the circumstances and characteristics of studio teaching models in the discipline areas of Art, Architecture and Design. A further aim is to uncover effective studio practice in each of these disciplines to inform curriculum development, future practice, and professional development for studio teachers, and to help shape university policy with regard to appropriate resourcing.

The views of academic staff involved in studio teaching – in the classroom and/or in program leadership roles – have fundamentally informed the Project from its inception and have provided perspectives, across a broad range of disciplines, of the challenges and opportunities they now face, and their responses to these changes. How do Australian academics describe their studio classes? What do they feel most contributes to successful, even ideal, studio classes? And what needs to be done to attain the best studio outcomes in the future?

In addition to an extensive review of literature on studio teaching, there were three main sources of primary data for the project: (i) workshops and papers associated with three National Forums on Studio Teaching (2007, 2008 and 2009), each of which attracted in excess of 80 participants; (ii) an online

survey of Australian academics (2008) that included 352 respondents who reported in detail on 301 specific studio projects/classes; and (iii) a 2008-2009 survey of heads of 28 schools or departments from 19 Australian universities with Art, Architecture or Design degree programs.

The Studio Teaching Project Final Reports

The Project is presenting its findings in four interrelated volumes: Volume One provides an overview of the project's work, including its pedagogical foundations; the focus of Volume Two is an analysis of the responses to the Survey of Academics; Volume Three focuses on an analysis of the Heads of School Survey; and Volume Four is a compendium of case studies of effective studio practice, drawing to a significant extent on contributions to the three National Forums. There is also an online toolkit for studio teachers associated with these volumes at www.studioteaching.org

The Framework, Analyses, and the View Ahead

The studio, and what distinguishes studio teaching and learning
In the Art, Architecture and Design disciplines, the studio is where learning emerges through action – an investigative and creative process driven by research, exploration and experimentation, and critique and reflection. Studio teaching and learning can be distinguished by emphases on project-based work; learning through praxis; learning through workshop; and learning through first hand observation.

Following on from these distinguishing characteristics, Art, Architecture and Design studios need to be understood in four essential dimensions: a studio culture/community of people; a mode of teaching and learning; a program of projects and activities; and a physical space or constructed environment.

The factors that contribute to ideal and 'best experience' studio outcomes
Based on the Studio Teaching Project Survey of Academics, the theme that most often appeared as the leading indicator of an ideal studio or a teacher's "best experience" was the quality of the studio project. Insofar as there was a single characteristic that typified when studio experiences were likely to be successful, that characteristic was having a high quality project. There was no single definition of what goes into a "high quality project", but there were clear indications of what worked well for respondents to this survey: projects which were challenging; inspiring; multilayered; multidisciplinary; real world; interesting; and relevant.

In addition to the quality of the studio project, important factors included the quality of the teaching; a positive studio atmosphere; and reasonable class and group sizes. Other themes that occurred often enough to warrant being coded as distinctive types of mention were good staff/student interaction;

access to good studio spaces (although not necessarily dedicated) and facilities; the quality of staff and of students; and links beyond the university.

The Head of School Survey led to slightly different descriptors of the most crucial qualities of successful studio teaching. In terms of 'the people factor', heads of schools/departments affirmed the importance of having a skilful academic teaching staff, excellent technical staff, and enthusiastic and motivated students. Necessary 'facilities and resources' included flexible studio spaces, appropriately equipped workshops, and industry standard ICT software and hardware. Next, and in line with the Survey of Academics, the heads of school nominated high quality projects – challenging and inspiring, with a focus on student centred learning, and relevant to contemporary industry workplace problems.

Key indicators to assess student outcomes in studio

Analyses of the literature and of the Project's primary data sources identified three dimensions for studio assessment, categorised as focussing on the Product (e.g., content knowledge), the Process (e.g., reflective skills and professional awareness), and People (e.g., personal development). Assessment criteria in the Art, Architecture and Design discipline areas were seen to follow different emphases: Art (Process, followed by Person, then Product), Architecture (Product, followed by Process, then People), and Design (Process, followed by Product, then People).

An elaboration of relevant criteria ("indicators") for assessment identified a series of more detailed dimensions that could be applied to studio assessment situations, including, for example, Concept resolution, Presentation, Interdisciplinarity, Engagement, Self-awareness, and Self-management. And at the core of all these indicators, is the illusive criterion of *Magic*, that intangible/intuitive essence that is often as easy to recognise in studio, as it is difficult to describe.

Five principles for the application of these indicators are suggested: (1) The indicators are *flexible* in that every indicator does not need to be assessed every time. (2) The indicators can be used at both the individual subject and degree level as a *touchstone* to facilitate reflection on, and re-alignment of, assessment in studio. (3) The dimensions and associated indicators can be used to support *developmental* assessment as students progress through their degree program. (4) The indicators can be used at the individual subject or degree level to inform the *design* of studio assessment tasks and the development of assessment rubrics. (5) The indicators can be openly discussed with students and in this way facilitate the development of a *shared understanding* of what is being assessed and why.

Benchmarks for studio teaching

In addition to providing principles for the application of studio assessment criteria, a synthesis of findings from across the Studio Teaching Project led to a series of interdependent benchmark statements about effective practice in studio that can be used by studio teachers to reflect on their practice, and by

those involved in curriculum design, development and review. Benchmarks include quality projects; quality staff; positive studio community; student engagement and commitment; high level of interaction; effective collaboration amongst students; reasonable class and group sizes; connection with industry and the profession; a variety of studio outcomes; and provision of appropriate studio spaces and facilities.

The view ahead: Challenges and Opportunities

Heads of school are unanimous in their belief that studio teaching is a key and indispensible characteristic of pedagogy in the disciplines of Art, Architecture and Design. Over three-quarters of these heads also agreed that they are now exploring alternative and more efficient ways of delivering studio teaching, and over two-thirds agreed that some aspects of studio teaching in their institutions were currently marginally viable and/or under threat.

Standing alongside the responses about a range of pressures on heads and the programs they administer was the finding that approximately 93% of these heads also agreed that the quality of their graduates was high, a strong indication that despite (or because "necessity is the mother of invention") they have been able to maintain high quality outcomes for students.

What was also apparent in heads' comments about the current status of Australian Art, Architecture and Design schools, however, was the array of serious concerns related to resources (funding, teaching spaces (dedicated as well as non-dedicated), technology, quality staff, and workload-related stress, for example) and to structures in the sector (the loss of sub-disciplines, the lack of differentiation across institutions in what they offer, the demands of accreditation, for example) that call into question their ability to improve the quality of the student, and staff, experience in the future.

Perhaps more germane in the drive to attain the best studio outcomes in the years ahead, however, were observations made by several respondents in the Survey of Academics who focused their attention less on physical spaces and equipment, and more on the things which would make the studio a more vibrant and compelling experience. It is appropriate to recall here the crucial importance of good projects for highly valued studios. The adjectives linked with those studios – challenging, inspiring, multidisciplinary, relevant, and so forth – are clear pointers on the way to achieving improved studio outcomes in the future.

Those themes – including the need for more flexibility and creativity in the design of studio teaching and learning – were well expressed by two of the respondents in the Survey of Academics. Specifically, studio teaching academics:

[Need to] encourage advanced outcomes that are open-ended and speculative … allow space for unpredictability … rather than ticking boxes in teaching as well as the more career-driven curricula that are currently becoming fashionable.

[… and academics] have to take risks, to innovate, to design fresh and challenging programs, to question our mode of operation and the way we teach.

Recommendations

The following recommendations identify issues and actions for consideration by government, government agencies, education institutions, schools and departments, individual Art, Architecture and Design academics and their professions.

Governance and Institutional Support

1. Government and institutions should review funding models to recognise the essential characteristics and role of studio teaching within the disciplines of Art, Architecture and Design to more adequately resource studio teaching.

2. Institutions, schools and departments should develop processes to make staff workloads more manageable; to balance teaching, research and service commitments; to make staff development a reality; and to make recruitment, retention and succession planning more effective.

3. Institutions, schools and departments should recognise that staff in the Art, Architecture and Design disciplines need to include a mix of industry/professional and academic skills in order to meet learning objectives.

4. Institutions, schools and departments should ensure good and well maintained working space, facilities and other resources (including flexible premises appropriate to disciplines, projects and level of study; access to appropriately equipped workshops and technical support; and ICT hard and software appropriate to discipline and industry standards).

5. Art, Architecture and Design professions and representative academic bodies should require, where possible, that studio space and equipment standards be included among accreditation/benchmarking criteria for each discipline.

6. Representative academic bodies, schools and departments, with institutional support, should establish guidelines and benchmarks for access to studio space for student use (especially outside normal working hours and in terms of occupational health and safety provisions) and ensure they are documented and promoted.

7. Institutions, schools and departments should establish clear and consistent articulation agreements between education providers, and courses that recognise the types of learning opportunity distinctive to vocational education and training (VET) and higher education sectors that together contribute to the mix of learning skills needed in graduates. VET and higher education sectors should consider the potential of joint award programs, subjects and projects.

8. Institutions, schools and departments should develop more efficient models for delivery of, in particular, Fine Arts studios, including streamlined course structures, fewer individual degrees, and simplified major streams. Standardised nomenclature should also be considered.

Guidelines for Studio Teaching

9. Studio academics should ensure that studio includes collaborative activities such as group projects, peer critiques, discussion and skill sharing to prepare students for industry/professional practice that is increasingly reliant on effective communication among team members, and engagement across disciplines and with project associates.

10. Schools and departments should facilitate effective and high level interaction between staff and students to achieve quality learning outcomes and experiences in studio – provision of extended periods of time in studio with peers and staff members, non-linear, time intensive and reiterative practices engaging in studio use over time beyond the limitations of formal structure.

11. Schools and departments should encourage potential synergies between industry/professional practice and academic research, and where appropriate develop collaborative projects within academic research structures and processes.

12. Art, Architecture and Design curriculum developers are encouraged to consider ways to utilise more efficiently and effectively the range of learning opportunities made available through contemporary study options, from vocational education and training (VET) certificates to doctorates.

13. Studio academics should ensure that studio class structures recognise that smaller studio groups allow for greater interaction among staff and students, and between students, and help to create a positive studio environment that is conducive to experimentation and risk-taking, leading to best outcomes for student engagement and learning.

14. Assessment is a key element in the mode of studio learning, and studio teachers and curriculum designers should use the STP assessment indicators presented in Part Five of Volume One as a means of advancing the overall student learning experience in studio.

15. Schools and departments should review, discuss, and consider adopting the benchmark principles for quality studio teaching in Art, Architecture and Design, as detailed in Part Four of Volume One.

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List of tables

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Introduction

> Studio teaching is the primary mode of learning in our disciplines. …[S]tudio teaching is the defining feature … and their greatest asset. The studio environment offers an unparalleled opportunity for creative discovery, exploration of ideas, critical discussion, and risk taking. Above all, students find that the studio environment offers a strong community where life long professional friendships are cultivated.
>
> STP Head of School Survey

Context and Need for the Study

The studio experience is considered an integral part – many would say the integral part – in the education of artists, architects and designers. Teachers of studio know that it is a potent way of learning. It uses a model of education in which students are immersed in a community of reflective creative practice, working alongside, as much as under, the guidance of a practitioner/educator (Schön 1983). Within each of these disciplines it is assumed that studio teaching is intrinsic to learning and the student experience; that it is valued and well understood.

However it is also acknowledged that studio teaching is under threat (Frankham 2006; Leon 2004). Furthermore, the fundamental assumptions that underpin our understandings and delivery of studio teaching may not be shared (Ledewitz 1985), either within or across the disciplines, nor necessarily agreed to by university administrators who are responsible for resource allocation for teaching. As one Pro-Vice-Chancellor remarked:

> Studio-based practice is the central component of the Art, Architecture and Design professions. Studio-based teaching has specific educational challenges relating to each discipline … [L]earning and teaching within the three disciplines traditionally occurs in a 'studio environment'. Yet, despite its general acceptance as the favoured model for learning in the disciplines, studio is increasingly under threat in the current Australian University setting.
>
> From a letter endorsing the original STP ALTC grant application, March 2007

There is an emerging interest in studio and project-based learning across the education sector (Carbone et al. 2001; Kuhn 2001). Studio is at the forefront of educational concepts such as reflective practice (Schön 1987) and learning-by-doing in a constructionist learning environment (Papert & Harel 1991). In some disciplines such as Engineering (Little & Cardenas 2001; Kuhn 2001) and Computer Science (Reimer & Douglas 2003; Carbone et al.

2001) new modes of teaching are referred to as studio, and these are emerging practices yet to be fully developed. As a member of the Association of Architecture Schools of Australasia (AASA) noted:

> Conventional wisdom in architectural pedagogy holds that 'the studio' is at the centre of design teaching and learning. Since the Renaissance a studio culture has been described as one valuable component of the education of an architect. However, a growing body of research has identified that over time this historic view of the centrality of the studio has gradually changed and now a wide range of disciplines use the word 'studio' to refer to a diverse array of activities, spaces and practices.
>
> From a letter endorsing the original STP ALTC grant application, March 2007

These new studio practices have the potential not only to learn from the experience of disciplines where studio is a well-established form of learning, but also to reinvigorate established studio practices.

However, there are contextual issues that affect studio teaching including:

- resources (personnel, space, time and digital technologies);
- popularity of degrees leading to increased student enrolments;
- structural change in the sector and institutions;
- professional development needs of studio teachers;
- developing trends/changing demands of the Art, Architecture and Design professions;
- developing trends/changing demands of the students; and
- accountability/expectations around course structure/content/assessment and outcomes.

As one Associate Dean Teaching and Learning observed:

> Schools of Art and Design have had to find ways to streamline their courses and this has had a significant impact on the capacity of these institutions to offer the necessary conceptual and technical skills that are required in these very demanding and time-consuming disciplines. An audit of studio-based teaching and learning is long overdue so that academics and administrators can begin to assess the current state of art and design training, especially in the context of the digital revolution that has occurred since these institutions have joined the University sector.
>
> From a letter endorsing the original STP ALTC grant application, March 2007

Like many aspects of higher education, the studio model is undergoing change. Some changes, such as the increasing availability and flexibility of information technologies, have been welcomed in studios to reflect ongoing changes in professional practice. Students are changing as well – in terms of their interests, their capabilities and, even more notably, in the time they are

able to commit to formal on-campus classes given their almost universal desire to maintain significant part-time employment during their university years. As articulated by one Professor of Visual Arts:

> I am very aware of the changing needs of students entering studio disciplines. [Investigations] will allow us to sharpen and enhance the pedagogy of staff in this vital area, giving us knowledge and analyses of the situation at a time when studio and computer laboratories are merging.
>
> From a letter endorsing the original STP ALTC grant application, March 2007

There is also increasing pressure on resources for studio teaching mainly around the amount of class and tutorial time that can now be budgeted and the extent to which dedicated studio spaces can be made available for our studio courses. Other issues include concerns over the extent to which programs can adopt information and communication technology (ICT) opportunities as they become available. Not all programs have been able to maintain both dedicated studios and generous allocations of teaching resources to those studios, and many programs are now facing the challenge of how they can best provide a quality educational experience for their students in the context of limited resources. As stated by one professor:

> I do believe that the time is right for a significant reappraisal of the role of studio teaching across the board. Like everything else today, studio teaching may have to morph into some other form that better suits today's combination of diminishing resources and electronic environments. Some of this is already underway, with significant inroads being made into on-line studios and digital environments in general. So the time is definitely ripe to take a look at potential developments over the next ten years so we can anticipate the needs of the coming generation.
>
> From a letter endorsing the original STP ALTC grant application, March 2007

The pressures to reduce studio spaces and teaching allocations are real. As we respond to those pressures it becomes even more important that academics come together to share their experiences – to identify the strengths and the weaknesses of what currently takes place in the studio setting, and to lay the groundwork for studio teaching in the decades ahead.

Focus of the Study

The focus of the Studio Teaching Project is to identify, describe and investigate the circumstances and characteristics of studio teaching models in the discipline areas of Art, Architecture and Design. A further aim is to uncover effective studio practice in each of these disciplines to illuminate the practice of studio for the higher education sector and identify practices that

enhance student experience and student learning outcomes. While studio teaching is important to many disciplines outside of Art, Architecture and Design (for example, music, drama and dance), the disciplinary expertise of the project team and the need to keep the project within reasonable bounds of time and resources led naturally to the emphasis on Art, Architecture and Design as the focus of investigation. A more detailed explanation of the disciplinary focus of the study can be found in Part One.

A systematic examination of the continuum of practice in studio teaching was aimed at informing curriculum development, future practice, and professional development for studio teachers, and helping to shape university policy with regard to appropriate resourcing.

The project aimed to address the following fundamental questions in relation to the disciplines of Art, Architecture and Design, and each of these questions are systematically addressed in the chapters that follow:

- What is studio and how does it contribute to student learning?;
- What models of studio teaching are currently used in each discipline area in Australia? How and why have models changed over time? Which models are considered most effective in terms of a variety of student learning outcomes?;
- What key indicators can be identified to assess good learning outcomes in a studio experience?; and
- How can the variety of approaches to studio inform future curriculum development and resourcing across the sector?

In preparing this report, the STP team considered contemporary government policies and initiatives, especially the Excellence in Research for Australia Initiative (ERA) (http://www.arc.gov.au/era/default.htm) and the 2008 Bradley *Review of Australian Higher Education* recommendations (Bradley 2008), and contemporaneous ALTC projects and reports in the context of trends in professional Art, Architecture and Design practice.

Methodology

The study involved a comprehensive literature review, an online survey of academic staff (Volume Two), a survey of heads of school (Volume Three), and two National Studio Teaching Forums in 2007 and 2008 (Appendix Four).

A total of 352 academics responded to the online survey, and 28 heads of school from Art, Architecture and Design schools and departments from 19 Australian universities took part in the STP Head of School Survey. A total of 180 staff attended the National Studio Teaching Forums held in 2007 and 2008.

A final forum to share the outcomes of the project and announce the online Studio Teaching Toolkit took place at the University of Tasmania in December 2009.

Further details about the study's methodology can be found in Appendix One. Other components of the Studio Teaching Project that complement the study are included in appendices or separate volumes, for example, the Studio Teaching Toolkit (Appendix Three) and Case Studies of Effective Practice (Volume Four).

Terminology and Abbreviations

It is acknowledged that different institutions and disciplines often use different terminology. The following terms, definitions and abbreviations are used in this report:

Studio	For the purposes of this report the following definition is used: Studio – learning through action – is an investigative and creative process driven by research, exploration and experimentation; making and constructing; and critique and reflection. Studio teaching develops students' skills with materials, technology and processes of design, making and construction, balanced with communication, and conceptual and problem solving skills development.
Degree	The term degree is used in this report to describe a student's whole program of study. Some universities refer to this as a program, award or course. However, there are cases when the term *award program* is used instead. This term is used when referring to other award types (such as diplomas) that are not generally referred to as degrees.
Subject	The term subject is used to describe the individual parts that make up a student's degree. In this report it is used in place of course or unit.
Art, Architecture and Design	Art, Architecture and Design are the three key disciplinary areas described in this study. These terms are often referred to as broad discipline areas incorporating sub-disciplines. For example the broad discipline area Art encompasses Fine Arts, Crafts, Digital Media and Media Studies; Architecture encompasses Architecture, Interior Architecture, Interior Design, Landscape Architecture and Urban Design and Urban Planning; and Design encompasses Industrial Design and Visual Communication/Graphic Design. More information about discipline categorisation can be found in Appendix One.

Fine Arts/ Visual Arts	Contributors to this project use these terms as interchangeable and all encompassing.
STP	The Studio Teaching Project has been abbreviated to STP when used in reference to the STP Academic and STP Head of School surveys.
Head of School	Australian Universities use a wide variety of academic administrative structures, and the disciplines of Art, Architecture and Design are sometimes taught at the level of faculty, sometimes in a school or department and sometimes in smaller units. The term head of school in this report, including in reference to the STP Head of School Survey, refers to those people with responsibility for the academic management of studio teaching in those disciplines, irrespective of whether the person holds the position of Dean or studio coordinator.

PART ONE

Defining studio and its contribution to pedagogy

> The reflective practicum [of the studio] demands intensity and duration for beyond the normal requirements of a course. … Students do not attend these events as live in them. And the work of a reflective practicum takes a long time … time to live through the initial shocks of confusion and mystery, unlearn initial expectations, and begin to master the practice of the practicum.
>
> (Schön 1987, p. 311)

Introduction

What is studio and how does it contribute to student learning? This question is answered by drawing on the STP Academic and Head of School surveys, the National Studio Teaching Forums and the literature.

In the Australian higher education sector the diverse, complex and nuanced meaning and application of the term 'studio' is considered central to numerous disciplines, particularly in fields of creative endeavour. These encompass the plastic and performing arts along with other fields such as fashion, journalism, and creative writing. This study limits itself to the broad disciplines of Art, Architecture and Design where studio has a long-standing and fundamental role in defining the practice of educational concepts such as flexible learning, reflective practice, learning in action, and embedded learning. In other disciplines and fields such as Science, Engineering and Information Technology, an interest in these modes has developed from project- or problem-based learning paradigms and new forms of teaching practice have been emerging in those disciplines (Armarego & Fowler 2005).

Learning constructs: delineating the context for studio learning

Within the disciplines of Art, Architecture and Design, the role of studio is considered intrinsic to learning. Respondents to the STP Head of School Survey agreed that studio teaching is a key and indispensable characteristic of pedagogy in their disciplines. Further responses in defining studio as a contributor to learning included adjectival variations along similar lines: "critical", "fundamental", "major", "most important"/"highest importance", "most significant", "essential" and "primary" (STP Head of School Survey). This suggests acknowledgment of an engagement in learning through project-based activities in a studio setting involving direct dialogue between teacher

and student and between students. The unanimity for the primacy of this view is reflected in other prescribed positions on the role of studio in education, such as the UNESCO-UIA Charter for Architectural Education (2005) to which Australia is a signatory and which states in Section III: Conditions and Requirements of an Accredited (Architecture) School, "That adequate studios … be provided … That teacher/student numbers … reflect the design studio teaching methodology required to obtain the above capabilities as studio teaching should be a major part of the learning process … That individual project work with direct teacher/student dialogue should form the basis of the learning" (Lerner & Tochtermann 2005, p. 5).

Although much is shared, there are also differences in studios within each of the broad disciplines of Art, Architecture and Design. The Studio Teaching Project (STP) aim of identifying, describing and investigating the circumstances and characteristics of studio in Art, Architecture and Design was initially confounded by assumptions of a shared understanding of the concept of the term 'studio'. Despite widespread usage of the term in the sector there is divergence in intentions and meaning within disciplines, across disciplines and within institutions. An elision between the use of studio as a noun and verb occurs frequently, unconsciously and culturally. Initial discussions between members of the STP team, later confirmed by commentators at the 2007 National Forum on Studio Teaching, revealed the need for a finer definition of the term. An understanding of studio and its contribution to learning is dependent upon first unravelling and illuminating these distinctions.

In *Understanding Architectural Education*, Ostwald and Williams distilled the common features of studio to five central characteristics, studio: "has a focus on design", "facilitates creative thinking", "is centred on a project", "is concerned with integration", and "promotes enculturation" (2008, p. 146). Also writing largely from the perspective of Architecture, Schön developed a comparable way of describing the essential elements of studio that could identify fundamental learning constructs of relevance across a range of studio-oriented disciplines. In his terms, studio encompasses one or more of the following learning constructs:

1. A culture, created by a group of students and studio teachers working together for periods of time;
2. A physical space or constructed environment in which the teaching and learning can take place;
3. A mode of teaching and learning where students and studio teachers interact in a creative and reflective process and where independent learning is encouraged; and
4. A program of activity where content is structured to enable learning in action (Schön 1987).

Data generated by the STP surveys and forum discussions confirm the applicability of Schön's constructs to the three STP Art, Architecture and Design disciplines, acknowledging the mix of typical characteristics and qualities deemed essential elements of good learning. The data also suggest

that some sub-disciplines may prioritise the elements differently and identify more strongly with one essential studio element in preference to others. Consequently, examining studio through the lens of each of Schön's four constructs will:

- clarify studio and its contribution to learning;
- demonstrate distinctions in studio and studio's contribution to learning in each of the broad disciplines of Art, Architecture and Design; and
- provide a foundation and context for study findings that examine the various models of studio, the impacts of changes over time on those models, and the key indicators of effective studio practices.

1. The Studio is a Culture, a Creative Community

The culture of creative disciplines is related to the development of, and lifelong engagement in, skills and expertise that are particular to a physical or action-based exploration of, and experimentation with, ideas, materials and spaces. The outcomes of creative activities are not derived from a hypothesis/synthesis trajectory as in the sciences but are dependent on open-ended interactions with ideas and exploration. This interactivity directs particular ways of thinking and working that are hallmarks of the culture and its principal setting for learning: the studio (Huang 1998; James 1996).

People are a key resource for studio teaching spaces and further complement the flexible nature of studio-based learning. The studio typically engages a diversity of teaching personnel, each having subtly different roles in a student's learning experience reflecting the diversity and flexibility of the studio phenomenon. The degree/subject coordinator combines a teaching and administrative role in designing aims and facilitating studio tasks directly through one-on-one studio tuition, delivering lectures and administering all forms of feedback and assessment. In much the same manner as the degree/subject coordinator, part-time or session tutors undertake one-on-one teaching in the form of tutorials and reviews, pin-ups and critiques. Technical assistants may support the studio cohort with specialist equipment and processes. Student peers contribute to the learning experience through working in groups and sharing the benefit of comparable learning platforms. Industry/professional guests provide an opportunity to share traditional and new skills and generally are invited to participate in critiques, juries and reviews. The amount and type of space available for studio teaching, class size, and the need for relatively high staff to student ratio were identified in the STP Head of School Survey as critical for this mode of teaching. In addition to the impact people make on the effectiveness of studio spaces and equipment, references to a "lively" undergraduate "community", a "critical mass or hot housing" were common (STP Head of School Survey).

While the processes embedded in studio-based learning activities build practical and intellectual skills, a successful studio culture encourages interaction between all participants to support reflective and active learning of the processes of the discipline. This interaction allows the studio cohort to

define itself as a community and as such immerse itself within the nuances of the practice of the discipline. This enables an understanding of the connections to the culture of the discipline through the application and integration of skills and knowledge that is relevant to disciplinary practice. Research suggests the role of studio is pivotal in setting an 'authentic artistic experience' by immersing students in disciplinary focused circumstances throughout the duration of their formal education developing an implicit resilience in graduates and an underlying understanding of the culture of the practice of the discipline (Benson 1999).

All three broad disciplines cite relevance as the core value of studio and credit studio for its role in the process of enculturation (STP Academic Survey; STP Head of School Survey). In Architecture for example the profession regards studio as the most important part of the curriculum and understands that all graduates will enter their profession with a competency in process that can be applied to any specific circumstance (Ostwald & Williams 2008). By emulating industry/professional practice through a studio-learning context the student is engaged in a system that fosters relevant learning processes and skills ensuring reciprocity with relevance in the educational focus of each discipline. Studio culture, therefore, is developed through participation in extended periods of learning activities whose duration emulates disciplinary practices rather than a sequence of conventional learning modules.

Cultural immersion into a discipline by way of studio experiences over the course of a degree can have unintended consequences as well. Ostwald and Williams cite a number of authors who suggest that it is possible for studios to enforce disciplinary isolation and "clannishness" among students, and thereby ill-prepare them for the multidisciplinary context of contemporary industry/professional practice (2008, pp. 18-19).

Representative responses in the STP surveys confirm the unanimity – between the three discipline areas of Art, Architecture and Design – on the cultural significance of studio:

> The studio environment offers an unparalleled opportunity for creative discovery, exploration of ideas, critical discussion, and risk taking. Above all, students find that the studio environment offers a strong community where life long professional friendships are cultivated.
>
> Studio is central to learning. It is the occasion for: peer to peer learning; problem-based learning; group instruction; one on one instruction; a place where work is undertaken (including drawing/modelling/discussion/small presentations).
>
> STP Head of School Survey responses

It is clear these sentiments are not directed to, or formed from, the evidence of significant variations in formal allocations of time in studio subjects. Rather they anticipate and reflect an expectation for the cultural role studio learning plays within each discipline.

2. The Studio is a Mode of Teaching and Learning

> A studio is [a] one-off event, they are dynamic learning environments which are responsive to and shaped by those involved – both students and staff, external people such as clients and critics – as well as the nature of the projects involved. The key aspects about the design studio in its contribution to learning – is that students learn through the process of designing, as distinct from learning about design.
>
> STP Head of School Survey response

Teachers know that the studio mode of education is a potent way of learning where students are immersed in a milieu of reflective and creative practice, working alongside as much as under, the guidance of a practitioner/educator. The mode of learning and the mode of teaching are intrinsic to one another in that they happen 'in action' while the work is happening (Schön 1987). The exchange of ideas, critiques, questions, skills and discoveries between student and teacher are the crucial catalyst for learning while doing.

Historically the practice and education of Art has evolved from the master/apprentice model of the 'ateliers'. Sullivan points to the belief held through most of the 19th and 20th centuries that "artists cannot be 'made'" and therefore nothing much beyond skills can be taught (Sullivan 2005, p. xii). A shift from the atelier model has been prompted practices of critical reflection, the development of theory, practices of critical reflection, and the integration of visual arts into university structures.

The studio in Art is built around the skills and attributes of the studio 'master', or rather, the relationship between 'mentor' and 'protégé' (Benson 1999). Students learn the technique and philosophy of the mentor's practice. The

learning process is iterative and includes all that is involved in, "sustained forms of creative practice: questioning, reviewing, reflecting, analysing, performing, speculating, relating, remembering, critiquing, constructing and ultimately further questioning rigour and systematic enquiry yet in a way that privileges the role imagination and intellect plays in constructing knowledge that is not only new but has the capacity to transform human understanding" (Sullivan 2005, p. xii). "Sustainable forms of scholarship and enquiry in the academy … are ways of legitimating affective understandings and perceptions, … exposing not only aesthetic but also epistemological and ontological understandings" (Duxbury, Grierson & Waite 2007, p. 7). These depend on a cyclical pattern by allowing students to participate in a number of studios led by different individuals to build a repertoire of skills and to inform their own art practice.

In Architecture the objective is to teach students processes required to distil each unique task into a clearly defined problem and to apply technical skills through a critically reflective process to propose a solution to that problem (Schön 1987). While the 'solution' will call on a range of diverse fields of knowledge it is understood that it is the critical integration of the knowledge that is essential to the education process (Fernando 2006).

In much the same way in the discipline of Design, student learning is guided by and constrained by the parameters of technology, both in terms of access to facilities and the moral issues surrounding copyright in virtual practice and the use of generic project development models (Green 2005).

Responses from the STP Head of School Survey reinforce the importance of interaction in learning through the unique circumstances of the studio by:

- [Facilitating learning through making]: Students learn through doing – through responding to (or sometimes developing their own) briefs, evaluating the situation presented to them and then developing a design response through processes of critique, self analysis, research – designing, reading, thinking (as designers are required to do).

- [Experimenting]: Studio teaching provides: an experimental learning environment; supports learning by doing – making, experimenting and direct engagement in process; opportunities for immediate formative feedback – direct guidance and support for student; collaborative space; environment for peer-to-peer learning – exchange of ideas and techniques; ability to deliver content in different manners – lecture, presentation, discussion, debate etc.

- [Establishing a link between practice and theory]: a praxis approach; design though making and integrated theory; skills and conceptual development is integrated.

- [Learning how to use materials]: Fundamental hand and traditional craft

based skills in working with materials, tools and processes are emphasised.

STP Head of School Survey responses

The interactions between the teacher and students in studio learning provide opportunities for clarification and additional direction, enable group discussion, and encourage collaboration. Interactions between the teacher and student occur in one-on-one tutorials, which can be face-to-face or online. Focused one-on-one interaction enables teaching to be tuned to each student's level of understanding. Face-to-face contact allows the teacher to assess the understanding of concepts and technical skills and most importantly the complex integration of theoretical and practical knowledge. In turn, the student has the opportunity to clarify direction and is offered an opportunity to observe the demonstration of the process by the teacher, 'in action'. By observing the teacher demonstrating, the student is given both an approach to the task and a technical skill to support the approach. Drawing on the research of "'no-logical' processes" by Chester Barnard, Donald Schön applies the term: "knowing-in-action" to describe this method of teaching, significant in the creative disciplines in that it draws on a student's own creative resource to include learning practical skills (1995, p. 30). The studio promotes learning skills in action, as they are applied in practice, ensuring a relevant integration of skills in process.

Interactions between students are a very effective learning interface of the studio (James 1996). Peers interact in structured learning situations such as collaborative set group work to emulate practice, especially when group membership extends across a range of disciplines (Bright 2007; Corkery et al. 2007; Longbottom et al. 2007; Selva & Carulli 2007; Alcroft 2007; Bernabei & Walsh 2007; Moon 2007; Doerfler & Dong 2007; Segal 2007; and Bender 2007). A significant complement with structured settings is informal interaction between students. Informality of peer-based interaction is a characteristic of the occupation of studio spaces (Musgrave & Hughes 2007). It allows students to work flexibly, side-by-side in a shared learning environment that is not a determinant of the narrow prescriptions for subject content or task settings. These unstructured interactions tend to be highly effective for developing skills in 'action learning'.

The potential for shared learning is also a key outcome of the interactive process. Within the diverse range of complex skills to be learnt in the creative disciplines, there is scope for different students to encounter different challenges. Students learn from each other's experience without necessarily experiencing the same problem (James 1996). As students learn and understand techniques they are able to share them with peers from their recent experience of learning.

Assessment plays a key part in the mode of learning in the studio. Assessment occurs as a form of dialogue over the work and may take the form of critiques, juries, and pin-ups, for example. Traditionally these forms of

assessment have been face-to-face. Studio advisors are increasingly enlisting technology to provide feedback in an online format (see, for example, Taylor 2008). In addition, different modes are suited to various points in the duration of the studio task.

Overall, the studio mode of teaching and learning inculcates in students cumulative learning habits that will continue with the individual into professional practice and throughout their career.

The significance of time

The time studio occupies in the curriculum varies greatly between disciplines and institutions. This variable is particularly unclear as consideration of formal allotted time in subject timetables and un-timetabled time is necessary to gauge the effectiveness of the use of studio as the principal form and place of learning. Furthermore, aspects of time also encompass the relationship of a studio to a particular course structure such as, for example, semester-long or compressed learning activities.

Emulating disciplinary practices over extended periods of time is a major characteristic of studio culture and transcends the typical distribution of hours provided for in timetabling of subjects.

The STP Academic Survey indicates substantial variations in the numbers of hours students spend on timetabled studio-based learning activities both within and between disciplines and institutions as well as in comparison to other modes of learning such as lectures, seminars, library use and so on. In the STP Academic Survey respondents were asked to estimate the number of hours per week students were expected to devote to project work undertaken in the studio subject taught (see Table V2.28). The data indicate that the most frequent estimate of the number of hours spent in lectures was one hour per week, three hours in studio with staff, three hours or more in studio without academic staff, one hour (with almost an equal number indicating two hours) elsewhere on campus, and two hours off campus (although responses were quite variable; almost the same proportion indicating three hours or six hours). Those components normatively add to 10 hours per week of student involvement, reflected in the modal response to the six to 10 total hours per week expected of students.

Although this information is useful in capturing currency in expected norms for studio subjects, other elements of the STP Academic and Head of School surveys draw a clearer distinction of the cultural emphasis placed on learning in the studio. In the qualitative responses to the STP Academic Survey about "the essential components of studio", the overwhelming rhetoric of respondents placed importance on collective learning, interaction, passion and dedication for the discipline, nurturing independence of, and for, reflexive learning and a flexibility of time and access to studio spaces (STP Academic Survey). Responses found in the STP Head of School Survey where

respondents where asked to "define and/or characterise studio teaching"; further reinforce expectations of allowing for the provision of opportunities for independent learning.

STP responses to questions about the number of hours students spend in studios suggest that there is no fixed model of studio teaching. There does appear to be wide variation in terms of access to supervised studios. The figures suggest that students are spending more time in academically supported studios than in lectures or tutorials. There does not appear to be notable differences in the time students spend in supervised studios between the three broad discipline areas.

The figures revealed that there are quite a number of cases, irrespective of discipline, where no technical supervision is available in studio. In Art, it appears that students are more likely to have access to technical supervision (perhaps because they have more technical requirements).

Participants were asked to indicate the number of hours or additional studio working hours expected of students within a semester, outside of normal teaching time (that is, unsupported studio time). Architecture appears to have a greater expectation although there is a high degree of variability in the range of hours indicated by respondents. In Art and Design students are often required to match unsupported studio time with class time. In a number of cases in the Architecture disciplines, students were expected to complete two, three or four times as many hours in studio than they spend in academically supported classes.

Overall, the data suggest there is a high degree of variation in the number of hours students spend on particular activities both within and between disciplines. However it would appear all models of studio strive to achieve best outcomes for learning through non-linear, time intensive and reiterative practices with expectations for engaging in studio use over time beyond the limitations of formal timetabled subject structure.

3. The Studio is a Program of Projects and Activities

Studio as a mode of teaching and learning places particular emphasis on the 'how' in the construct for determining the contribution to learning in studio. The complement of this construct is the studio program itself: the 'what' or content in student learning.

Program of activity: the place of studio in the curriculum

Studio subjects comprise by far the greatest weighting in percentage of time and credit of programs in Art, Architecture and Design (STP Academic Survey). In the ALTC funded report *Understanding Architectural Education in Australasia*, Ostwald and Williams report that in response to survey questions about what is significant in Architectural education, "The only area academics

rated as 'extremely important' was the design studio" (2008, p. 132). Their study reveals that in Architecture, studio regularly comprises up to 50% of subjects within a degree program. In programs of Architecture in Australia, the weighting of studio in terms of content in the average curriculum has remained relatively constant over time. In 1986 design studio represented 36% of the typical overall curriculum, and 28% in 2006 (Ostwald & Williams 2008, p. 121). In the second tier of the two-tier Architecture degree, the proportion of design studio increases to 42% of the program in 1994, up to 44% in 2006 (Ostwald & Williams 2008, p. 127). Comparative results are also evident in Art and Design. Responses to the STP Head of School Survey indicate that in Art and Design disciplines, studio comprised more than 50% of time and credit. Given the significance of studio to the curriculum, it is important to understand how studios are currently organised in Art, Architecture and Design and how they relate to the balance of a program of study. The most recurring characteristics relate to: interactions of students; integration of disciplinary skills; and the capacity of studio tasks to 'mirror' the breadth of disciplinary practice.

Representative comments from the STP Head of School Survey support this view:

> mirroring industry; projects that reflect industry briefs; … setting of 'open-ended' projects, it is the setting for training in design integration, and it calibrates student expectations to those of the profession; simulating future work environments; … projects focused on real world problem-solving exercises; … the application of creative conceptual solutions to projects that reflect industry briefs; … emerging artists being monitored by practicing artists and researchers in a variety of arts disciplines.
>
> STP Head of School Survey responses

This modality relies on the framework of a studio program as a vehicle for interaction. In the studio, "students learn by doing to recognize competent practice, appreciate where they stand in relation to it and map a path to it" (Schön 1983, p. 5). Learning through 'doing' can be understood as engaging in the creative process, be it making a work of art, designing an architectural project or designing an object. Engaging in critical discussion about creative work can also be considered as 'doing'.

Learning in studio is underpinned by a program or learning activity. Different project types have distinct characteristics but can be categorised by one of two different pedagogical approaches. In her study of the places of learning, Elizabeth Ellsworth (2005) identifies and describes the two approaches.

One approach sees, "pedagogy as the mere construction or representation of objects (for example, concepts, bodies of knowledge, curriculum, events in the world) for or to subjects (learners)" (Ellsworth 2005, p. 7). Such an

approach has its corollary in studio practice and it is consistent with a traditional master/apprentice model of studio. The studio coordinator becomes an expert passing on knowledge and skills directly; the content as taught is not open-ended. Such a model of studio has traditionally existed in the broad discipline of Art, especially in relation to learning technical skills and understanding materials. Although its value to learning is contested, there are studios that still adopt this approach as the principal mode of instruction. However, there are instances in the life of any studio where a master/apprentice or 'mentor/protégé' model is the most appropriate mode of instruction (Benson 1999).

An alternate pedagogical model described by Ellsworth involves active engagement by all studio participants in the making of knowledge rather than its, "representation [of knowledge] as a thing already made" (Ellsworth 2005, p. 27). In the STP Head of School Survey, one respondent put it another way by describing a situation where students, "learn through the process of designing as distinct from learning about design" (STP Head of School Survey). Duxbury and Grierson also propose that, "the manipulation of materials and the creation of artefacts encourage particular and novel ways of thinking, which lead to the generation of new knowledge and understanding" (Duxbury, Grierson & Waite 2007, p. 9). Most studios in Art, Architecture and Design would identify strongly with this second, student-centred approach.

Projects and activities

The program of projects and activities is understood to be the primary vehicle for learning in the studio setting. These learning activities vary greatly between disciplines and also between studios within each discipline. An Art studio may involve a series of practical classes, a field trip or a student's own self-initiated project supervised by an advisor. An Architecture studio can be an Architectural design project for a building, a field study, a series of tasks focused around an Architectural theme, and often directed through a prescriptive brief. A Design studio project may require students to analyse existing designs and propose an alternative solution, create a physical prototype for their own design. Each studio project is focused to achieve particular student learning outcomes.

Without exception the processes and outcomes of studio projects and activities tend to be exploratory and 'open-ended' (STP Head of School Survey, Q13) whilst it is clear that "... every discipline has its own realization of knowledge", it can be shown that studio projects do have some shared characteristics (Heylighen, Bouwen & Neuckermans 1999, p. 214).

- Each studio involves a range of activities.
- Projects and activities can be analysed for their capacity to address: skills development, concrete knowledge and tacit knowledge.

Skills development occurs when students are working with and through categories or orders of disciplinary specific knowledge using disciplinary

specific skills and conventions. Concrete knowledge tends to be structured, such as knowledge of composition, material, form, structure space and its experience. Tacit knowledge is indicated by the student's judgement in relation to knowledge and skills. It is accumulated through applying skills and concrete knowledge during a process and allows an understanding of abstract notions of order and the conceptualization and synthesis of ideas.

4. The Studio is a Physical Space or Constructed Environment

Tertiary institutions offer a diverse array of settings for teaching and learning ranging from social spaces for unstructured learning such as cafes, museums and libraries to highly programmed spaces for specific structured learning such as laboratories and lecture theatres. Within this spectrum of spaces students are able to recognise and develop skills in different learning modes. There is a tendency for more unstructured settings to permit reflective learning practices currently under threat (Radcliffe, Wilson, Powell & Tibbetts 2008).

The need for dedicated studio space would appear in part to be supported by data from the STP surveys where there is general consensus that the standard of spaces across the sector is adequate or less than adequate (STP Academic Survey). Although there are striking contrasts in the character, availability and use of physical spaces across the disciplines of Art, Architecture and Design, dedicated space in Art studios appears more prevalent than other disciplines. According to the STP Academic Survey, each of the studios in Art (Crafts) had dedicated spaces, and in 72% of those studios dedicated space for individuals was available. Similarly, over half (58%) of the studios in the Art (Fine Arts) category were associated with the provision of individual dedicated space. Interestingly, there was no dedicated space, for individuals or groups, in three-quarters of the studios in Interior Architecture/Interior Design, nor in Landscape Architecture. None of the studios in Urban Design/Urban Planning provided dedicated space for individuals, although in close to half of their studios there was provision for a dedicated space for the group. Overall a lack of 'any' dedicated space described the situation for 43% of all the studios reported on in the STP Academic Survey, including 46% of those where Architecture was the sub-discipline (see Table V2.31).

The studio space has a unique functionality, which is not supported by any of the common or conventional tertiary learning spaces. The studio is a space for students to engage in the processes of their discipline with access to elements conducive to studio teaching and learning. The studio setting allows for the simultaneous engagement in several learning modes supported by a natural flux between unstructured and structured learning. There are many models for studio environments. Different creative disciplines require different types of spaces and different facilities to support their specialisations. Furthermore, different studio-based learning activities will utilise studio space

in different ways (Huang 1998). The Fine Arts as "critical and creative investigations … are forms of research grounded in art practice" which are distinguished from other disciplines by the need for studio spaces to directly facilitate the specified plastic or making characteristics of the practice of the discipline (Sullivan 2005, p. xi). In Architecture, on the other hand, specific characteristics of spatial needs for learning could be described as 'attitudinal' providing an opportunity for regular face-to-face monitoring ensuring clarity of objectives for the student (Ostwald & Williams 2008).

In all instances across all three broad disciplines, the space of the studio environment is student focused and supports interaction between staff and students, and amongst students. These spaces accommodate group and individual requirements, often simultaneously. The studio is associated with a range of support facilities to assist with the learning process and usually integrates current, relevant technology of the discipline. Although there are varied requirements for each discipline there are common characteristics that all studio environments require.

Studio facilities and resources

Flexible studio spaces are an essential complement to the interactive nature of studio learning. Adjustments to the arrangement of studio furniture allows flexibility in the setting of the studio subject tasks including the opportunity for impromptu group activities and demonstrations, as well as the opportunity to orchestrate various simultaneous activities or events in the teaching program. A degree of flexibility is also desirable to allow students to personalise their learning environment and to adjust equipment to suit personal preferences. Personalisation of space encourages community and engagement. In addition to the working spaces, storage facilities (ideally for each student as well as for collective use) accommodate the tools and materials utilised in studio learning.

The inclusion and integration of relevant technologies, with comparable functionality to that used in practice, ensures relevance. Direct access to support facilities enables students to work in a range of modes, integrating physical and virtual skills. This allows relevant skills to be explored and learned in an applied situation and facilitates the students' discovery of the potentials of the tools and technologies of their discipline in a process that simulates practice. For this reason, equipment that is located remotely from the studio and is not easily integrated into the studio-based tasks has limited benefit. Instances of facilities beneficial to studio tasks include: workshops for specific 'making' activities, computer laboratories, technical laboratories or work places for controlled activities such as darkrooms, conventional and prototypical printing facilities (2D and 3D). These are clearly supported in response to the STP Head of School survey.

However desirable it is to have all facilities directly at hand, specialised learning environments are subject to standards and design codes that

determine many of the minimal attributes of such spaces for security, health, access, air quality, safety, fire protection, ergonomics and other constraints that can be determined by the specialised functions of space.

As tertiary institutions move towards more flexible student-focused spaces, alternative models for the control of spaces are required. The Australian Learning and Teaching Council (ALTC) funded Next Generation Learning Spaces (NGLS) project explores the interdependence of pedagogy, space and technology and sets up a framework to allow for all stakeholders to communicate intentions for spaces (Radcliffe, Wilson, Powell & Tibbetts 2008). This project has led to an interest from science and engineering seeking to enhance flexibility of their pedagogical aims and methods to develop spaces that have the general and specialised attributes akin to studio settings across the sectors of Art, Architecture and Design (Radcliffe, Wilson, Powell & Tibbetts 2008). Although the NGLS project establishes a flexible framework for all stakeholders there is as yet no evidence to suggest how an implementation could be prescribed through design codes. Such standards could be established by accreditation criteria for the minimum space standards for studio environments, as is the case in Architecture schools in the USA and Canada.

Flexibility in the adaptive uses and attributes of studio spaces is augmented by the culture of studios themselves. The flexible use of time is a key characteristic of this culture, and intrinsic to the provision of physical space for studio learning therefore is the need for flexibility of access. When asked to indicate how many hours students spent on particular activities, respondents to the STP Head of School Survey provided a range rather than a single figure, for example, between 16-20 hours. In addition some participants did not consider lectures to be a distinct form of teaching (and therefore indicated total class hours rather than separate figures for lectures and tutorials). Similarly, some respondents did not distinguish between tutorial and critique sessions, and others between studios and workshops (particularly in Architecture).

What is evident is that architects and landscape architects are most likely to make use of 24 hour, seven day a week access to studios (56% and 42%, respectively), while only 6% of those involved in Art (Crafts) projects do so (see Table V2.34). It is not clear from the survey data whether studio use could have been higher except for studios being off-limits out of hours, because of subject rules or because students simply preferred to work outside the studio setting. Less clear were the demands of new technologies on these spaces.

Physical vs. virtual

New forms of learning environments and teaching methodologies are beginning to challenge pre-conceived notions of the form and use of traditional dedicated studio spaces (Abel 1997/98; Al-Qawasmi 2005; Bender

& Vredevoogd 2006; Botti-Salitsky 2005). Digital technologies have arrived as an aspect of the student experience in an increasing number of studios. This underlines the likelihood of the emergence of considerable array of studio-based tasks that do not necessarily take place within the space of what is understood as a traditional studio per se. Dedicated spaces have traditionally been associated with Art, Architecture and Design disciplines, but the data provided by the STP Academic Survey indicate the extent to which digital technology has become an important aspect of the studio teaching and learning experience. As with dedicated spaces, there are notable differences. Overall, across the three broad discipline areas, in nearly one third of studios (31%) electronic communication among students was reported to be not very important. This rose to just over half in Art (Fine Arts) and Art (Crafts) studios (see Table V2.30). However, electronic communication among students was seen as very important for the successful completion of some studio projects in Digital Media/Media Studies (33%), Industrial Design (24%), and Urban Design/Urban Planning (20%), an implication being that information sharing and collaboration are more likely to be aspects of studios in those discipline areas. By far the most widely used facility of all is the computer lab. These are important in a majority of all sub-disciplines with the exception of the Art (Crafts) studios.

In addition to and emerging from digital technology, workshop and model-making facilities were almost universally used in the Industrial Design studios, and that sub-discipline was more than twice as likely as any other to make use of 3D rapid prototyping equipment. Site visits were components of all Landscape Architecture studios, and almost all Urban Design/Urban Planning studios. Landscape Architecture studios were also more likely to involve visits to professional practices than other disciplines, and the disciplines most likely to include visits to exhibitions were, predictably, those involved in Art (Fine Arts) and Art (Crafts) (see Table V2.34).

Access to facilities and resources

The place in which learning and teaching occurs includes the physical circumstances of the studio setting, the space of studio its furnishings, lighting together with technology infrastructure. Implicit in this are questions about the degree of access students have to studio space, the flexibility of studio space, and whether studios provide dedicated work and/or storage spaces.

Undergraduate studio space

The STP Head of School Survey included two questions to gauge the availability of dedicated studio space for undergraduate students. In Art, the majority of respondents indicated that undergraduate students had dedicated studio space. In four cases, respondents from Art indicated that while space was available it was only available to second and third year undergraduates, or third year students and above. Two respondents indicated that while first year students did have access to studio space, they had to remove their work at the end of class. Only two indicated that undergraduates did not have

dedicated studio space. In Architecture, nine respondents indicated that undergraduate students did not have dedicated studio space, and five indicated that students did have dedicated space or that students in some years (for example, either first years or second and third years) had dedicated space. In Design, no respondents indicated having dedicated studio space for undergraduate students (although one indicated that 60% of undergraduates do). Overall, only 50% of respondents specified that some or all undergraduates had dedicated studio space.

The survey also asked if dedicated space were available for each year group or each studio major/specialisation/stream. Of the six respondents who indicated "yes" for Question 14a (that undergraduate students had dedicated space), four indicated that dedicated space is available for each year group and each studio major/specialisation/stream. Two of these respondents were from Art and two from Architecture.

The STP Heads of School survey also sought information on the nature and conditions of studio provision. Minimal detail was provided about studio provision in Art. One respondent mentioned that while the studio spaces were of good quality there were not enough of them. Another respondent (from Digital Media) indicated that they had 20 computers available in studio and that studios had "collaborative access". Another respondent mentioned that the nature of studio spaces had changed due to relocation but did not specify the current nature and conditions of the relocated studio.

A range of conditions for studio were described in Architecture such as single large studios (200 capacity); flat-floored lecture rooms with moveable tables; large open spaces with booths; flexible spaces (with no computers); the provision of flat tables for drawing boards or lap-top computers; provision of a common space where each year group gets a day per week in the space; and shared space (where students cannot leave their work owing to the space being used for other classes).

In Design, studio spaces included collaborative and individual spaces and "break-out" spaces; studio spaces with a limited number of shared computers; flexible studio spaces; and studios with a capacity of 24 students (four "pods" of six students).

Postgraduate coursework studio space

The survey also asked respondents to indicate whether or not postgraduate coursework students had dedicated studio space, including its major use characteristics: lockable, shared, and available to part-time students.

In Art and Architecture the majority of participants indicated that dedicated studio space was available to postgraduate coursework students (this question was not applicable to four respondents from the Architecture discipline area as they did not offer postgraduate coursework degrees). In the Design disciplines, half of the respondents indicated that Postgraduate

Coursework students had dedicated studio space, and the other half reported no dedicated space.

Overall, the majority of respondents (79%) indicated that postgraduate coursework students had dedicated studio space, compared with only 21% who indicated no dedicated space.

A total of nine respondents (32%) indicated that they had lockable spaces for postgraduate coursework students; 14 (50%) indicated that studio spaces were shared (the majority being from Architecture); and 12 (43%) indicated that studio spaces were available to part-time students.

Postgraduate research studio space

The survey also asked respondents to indicate whether or not postgraduate research students had dedicated studio space, including its major use characteristics: lockable, shared, and available to part-time students.

The majority of respondents from Art indicated that postgraduate research students each had dedicated studio space. By contrast, only two respondents from Architecture indicated dedicate space for postgraduate research students. Respondents from Design were mixed, three indicating at least some dedicated space and one indicating no space. A number of respondents to this question (21%) indicated that while postgraduate research students did not have dedicated studio space, they did have dedicated space of some kind (rooms, shared offices etc.) for the purpose of written work.

While 14 respondents indicated that postgraduate research students had lockable spaces, only nine (32%) of these referred to studio spaces. Similarly, while 15 respondents specified that Postgraduate Research students shared spaces, only 11 (39%) were referring to studio spaces. Of the 13 respondents that indicated that spaces were available to part-time postgraduate research students, 10 (36%) were referring to studio spaces.

Student access

The final question in the STP Head of School Survey related to studio space provision asked participants to indicate the general level of access that students had. Just over 50% of undergraduate and postgraduate students had access 24 hours a day, seven days a week. This figure increases for postgraduate coursework students, and again for postgraduate research students.

For undergraduate students, where complete access was not permitted, alternatives included a range of specified hours. A number indicated access between 8am-10pm or similar; and two specified between 9am and 5pm only.

Where unlimited access was not specified for postgraduate coursework students, students could often gain access after hours under certain conditions (for example, with written approval or if two or more students were working in the same area). On three occasions access was limited to specific

hours. Results suggest a similar pattern for postgraduate research students where limited access was specified on two occasions only.

Satisfaction with facilities and resources

In many respects, studio teaching is justified by arguments common across academic disciplines, however the full mix of typical characteristics and qualities are deemed essential to good learning within Art, Architecture and Design. While it is generally agreed the characteristics are understood and accepted, there is an underlying sense from the survey responses of unease about the viability of these characteristics within contemporary university funding models in the context of pedagogy and industry trends and expectations.

The amount and type of space available for studio teaching, class size and staff to student ratio were identified several times as critical by heads of school (STP Head of School Survey). It is implied in these views that such spaces were under threat and/or hard to maintain. While 78% of respondents indicated they strongly agree or agree studio teaching was viable in their School for the foreseeable future, approximately 68% suggested some studio aspects are currently marginally viable and under threat.

A large proportion (78%) of participants indicated they were concerned that budget limitations had compromised the quality of studio within their awards, with only 17% indicating studio teaching as adequately resourced.

Just over 50% of respondents agreed they were able to maintain and up-grade the computer and software items needed for studio teaching to a satisfactory level. Quite a number of respondents gave a neutral response to this question. This could mean there was some uncertainty about the extent to which participants felt their school/department could upgrade computer resources for studio, or the infrastructure support was not as applicable in their particular studio context. While the majority of respondents agreed they were able maintain computer-related resources, 64% agreed they struggled to maintain and up-grade non computer-related equipment and facilities to a satisfactory level.

Studios have been described as “active sites where students are engaged intellectually and socially, shifting between analytic, synthetic and evaluative modes of thinking in different sets of activities, (drawing, conversing, model-making)” (Dutton 1987 in Quinlan, Marshall & Corkery 2007, p. 1). The range of activities associated with studio; together with the open-ended, exploratory, iterative, and non-linear nature of those activities suggests that it is essential the place of studio allows room for indeterminism and experimentation (Ellsworth 2005, p. 11). Others have drawn from Winnicott’s (1971) comparisons between the space of play and the space of learning, to isolate the characteristics of studio that make learning possible, including that it is a “non-stressful” and a “transitional realm”. Studio is “the space in which

students can see their designs as the (transformative) objects of creative play" (Oschsner 2000, p. 197). Whether resourcing and the place of studio becomes the responsibility of university or student, these characteristics remain essential for quality learning experience.

Key Findings

1. Studio teaching is defined as learning through action – an investigative and creative process driven by research, exploration and experimentation; making and constructing; and critique and reflection. Studio teaching develops students' skills with materials, technology and processes of design, making and construction balanced with communication, conceptual and problem solving skills development.

2. In both academic and professional practice contexts the term 'studio' encompasses all the elements contributing to establishing a milieu for creative action. Art, Architecture and Design studio is understood as comprising four essential elements:
    - **A culture – people** – students and teachers – who build a creative community,
    - **A mode of teaching and learning** – characterised by processes of critical reflection, small class sizes, periods of face-to-face contact with teachers
    - **A program of projects and activities** that reflect and integrate professional practice
    - **A physical space or constructed environment**, teaching and workshop space, tools and equipment and technical assistance appropriate to project needs

3. In addition to specific Art, Architecture and Design discipline skills, studio aims to develop students' passion, rigour, initiative, motivation and intuition; engagement, tenacity and commitment; resourcefulness, self-reliance and independence; problem solving, lateral thinking and flexibility; communication, teamwork and self-reflection; and ethical conduct and respect.

Summary

In terms of the importance and relevance placed on studio learning there is shared agreement across the three broad disciplines – Art, Architecture and Design. All regard studio teaching as the single most important element of their pedagogies, "… studio teaching is the defining feature of art schools and their greatest asset" (STP Head of School Survey).

The following chapter further develops the definitive characteristics of studio by considering the models of studio teaching in current usage.

PART 2

Models of studio in current use

> Studio is central to learning. It is the occasion for: peer to peer learning; problem-based learning; group instruction; one on one instruction; a place where work is undertaken (including drawing/modelling/discussion/small presentations).
>
> STP Head of School Survey response

Introduction

Part One defines 'studio' as learning through action and making that forms the basis of an investigative and creative process driven by research, exploration and experimentation; making and constructing; and critique and reflection. Studio encompasses learning through combinations of the following:

- Learning through project-based work – an effective engagement in making and doing;
- Learning through 'praxis' – the effective and intentional integration of practice and theory;
- Learning through using tools – or skill-based workshop activities – the effective use of equipment and materials, development of craft and technical skills; and
- Learning from first-hand observation – the effective engagement of learning from example.

These characteristics of studio learning can, in turn, be situated in permutations of the following contexts or settings:

- Learning from an individual task focus;
- Learning through group discussion and critical feedback – the critique;
- Learning fostered by small class size, group work and one-on-one teaching;
- Learning in dedicated, flexible and appropriate spaces including workshops, equipment and technical resources as well as workplace/industry integration within curricula; and
- Learning from professional practitioners as lecturers and tutors and from an in situ engagement in the discipline.

What Models of Studio Teaching are Currently Used?

In the 2008 report *Understanding Architectural Education in Australasia,* Ostwald and Williams summarise the diversity in studio models within the discipline of Architecture through reference to a continuum with, at one extreme "the fully integrated studio with a cohesive and amalgamated curriculum that is taught in a space that provides students with 24 hour access to facilities … the middle of the continuum is the model where studio is a timetabled tutorial session where students come together to interact with their tutor in a space that resembles a classroom", and at the other end of the continuum, "students have timetabled hours in groups but effectively make an individual appointment to talk with a tutor in that staff member's office ..." (Ostwald & Williams 2008, p. 136). Based on STP data and findings, Ostwald and Williams' continuum is applicable to Art and Design as well as to Architecture.

Ostwald and Williams' (2008) categorisation of studios on the basis of allocation of time, and physical and human resources is useful for making judgements about resource management but does not effectively illuminate the relationships that might exist between the structure of a studio and its consequences for teaching and learning activity; projects, which bind the learning objectives, bring with them consequences for people, resources and time. A more comprehensive description of models of studio is made possible when learning objectives and outcomes are included and underpin projects and activities.

Grouping studios according to the type and focus of creative activity provides a means for identifying and describing models of teaching and learning which in turn can be linked to constraints such as time and resources. Six models of studio teaching can be derived from the literature, results of the STP surveys, and an analysis of case studies presented in the STP forums in 2007 and 2008:

- The 'project' model;
- The 'praxis' model;
- The 'workshop' model;
- The 'travel' model;
- The 'cross disciplinary' model; and
- The 'blended learning' model.

The 'project' model

> A studio is one-off event; they are dynamic learning environments, which are responsive to and shaped by those involved – both students and staff, external people such as clients and critics – as well as the nature of the projects involved. The key aspects about the design studio in its contribution to learning – is that students learn through the process of designing, as distinct from learning about design.
>
> STP Head of School Survey response

The studio project can be established as a brief by a lecturer or 'client' and also be resolved with significant student self-direction. The project is the catalyst for creating the educational milieu by directing the manipulation, amplification, and transformation of ideas. In Art a finer description is possible based on project focus or 'traditional' studio majors offering students a choice within a broad grouping **–** painting, printmaking, photograph and sculpture etc. **–** within award programs. Architectural design studios however have a more generic project basis in that problems of space and form arise as common determinants of projects. Similarly Industrial Design studios are project based in that they pose problems of product design.

Studio projects structure and model (design) thinking in order to reveal to students the knowledge to be learnt and various strategies for unearthing, integrating and constructing knowledge and ideas in a project (Quinlan 2004, p. 64). Emphasis in teaching and learning is placed on bridging between the imaginative and conceptual, the material and formal. Projects often involve activities that encourage students to develop techniques for identifying and negotiating competing demands and prioritising and ordering variables.

The 'project' model allows for an exploration of the relationship between disciplines and fields of knowledge. In some instances studio work demonstrates to students the differences between allied disciplines. In other instances it provides students with experiences of integration. Interdisciplinary and multidisciplinary work involves overturning boundaries between disciplines and is made increasingly possible through increases in the sophistication and reach of digital media. Case studies reveal projects supported by lectures, workshops, the integration of technology including computer laboratories and 3D modelling, and professional and other forms of interdisciplinary or trans-disciplinary practice.

Project types can be categorised in relation to the following:

- Projects provoke the imagination;
- Projects mirror practice;
- Projects direct a process; and
- Projects uncover new knowledge.

The 'praxis' model

… develops core competencies … design knowledge, skills and relationships …, ethical, sustainable professional knowledge …; [establishing a link between practice and theory] a praxis approach; design though making and integrated theory; skills and conceptual development is integrated; learning how to use materials; Fundamental hand and traditional craft based skills in working with materials, tools and processes are emphasised.

STP Head of School Survey response

The 'praxis' model invites processes of uncovering and illuminating principles and theories, which are then enacted or practiced. Theory and practice inform each other requiring "holistic praxis and action" and "embodied action in a learning environment" (Tudor 2008). Making artefacts is fundamental to processes of reflection and evaluation. This distinction distinguishes this type of studio model in its relationship to the importance of critical thinking as a major characteristic of the model. In reference to art practice as research, Duxbury and Grierson observe the notion that, "the manipulation of materials and the creation of artefacts encourages particular and novel ways of thinking, which lead to the generation of new knowledge and understanding" (in Duxbury Grierson & Waite 2007, p. 9) from a "process of creating in a way that reveals something more that self perpetuation … bringing forth an awareness or appearances through a work of art" (p. 7).

The STP Head of School Survey indicates this model is associated most with studios in the Fine Arts where it can be shown there are instances of "combining group and individual tuition in arts practice with the delivery of theory and contextual units"; learning "through making and integrated theory", mixing or monitoring of emerging artists with practicing artists and "private improvisation and experimentation, mastery etc … supported [by] public discussion, scrutiny, … peer and staff" (STP Head of School responses).

The 'workshop' model

[facilitating] learning through making and doing; Students learn through doing – through responding to (or sometimes developing their own) briefs, evaluating the situation presented to them and then developing a design response through processes of critique, self analysis, research – designing, reading, thinking (as designers are required to do).

STP Head of School Survey responses

This model advances the focus of both project and praxis by introducing and emphasising skills as the primary characteristic of learning-by-making as both a learning objective and an outcome. It is hands-on by definition. Examples in Architecture, Interior Design and Design, such as design-build studios, have learning objectives related to service learning. Many of the projects undertaken are real projects responding to the needs of identified user groups or clients. As such additional learning outcomes include introducing students to important skills via direct interaction with user groups and the values cultivated via community engagement and service.

In Art, "fundamental hand and traditional craft based skills in working with materials, tools and processes" are developed and fine tuned as a direct consequence of working with the material of design and production (STP Forum 2007). Similarly, "developing the capacity to think, experiment, reflect and refine through the processes of making with the attendant need to develop technical skills and competence with media, materials and equipment/technologies" (STP Head of School Survey). In this sense, the 'workshop' model especially relevant to the traditional craft areas of ceramics, jewellery, glass and textiles, etc.

In Architecture the equivalent is the design-build studio. This model enables students to be involved in the design and construction of (usually small) built works. Working with building materials breaks the nexus that traditionally exists whereby students of Architecture work on their design through modes of representation only. The learning objectives of design-build studios in Architecture primarily relate to revealing knowledge of materials and their assembly and the role that materials and construction play in the expression of space and form. In Architecture, a significant proportion of the literature on studio teaching as pedagogical research appears to be workshop related or design-build studios. An increase in design-build studios may reflect a renewed interest in the relationship between the thinking about and the doing of Architecture. It may also be that characteristics of design-build studio make them attractive for publication. In making, students quickly realize the consequences of decisions in relation to materials and their assembly. For Architecture students there is the excitement of undertaking work and the sense of achievement arising from completion of what are highly visible outcomes. A notable example of this is the long running Australian Timber Design Workshop from the University of Tasmania: Learning by Making Project: http://fcms.its.utas.edu.au/scieng/arch/cpage.asp?lCpageID=293.

Common characteristics for learning-by-making studios in Architecture and Design include subject offerings as an elective subject or programmed outside the semester timetable and a low student-staff ratio. The University of Tasmania Learning by Making Projects are conducted as electives with a ratio of one staff member per 12 students (or less). For example the *Penguin Interpretation Centre: Low Head studio* (2005) involved 20 students with three staff over the duration of 15 weeks whilst the *Home Point, Tamar River Studio* (2002) involved 45 students and four staff for a period of three weeks full time: http://fcms.its.utas.edu.au/scieng/arch/cpage.asp?lCpageID=293.

Design-build studios are time and resource intensive. Workshops in Art and Design are considered essential however design-build in Architecture requires access to additional specialist resources such as materials workshops that are not always available in Architecture studios.

The 'travel' model

Travel studios involve teaching and learning in an unfamiliar setting locally, interstate or overseas. The intention of the model is twofold: to introduce students first-hand to the exemplars of the discipline and to develop protocols for working in new environments, cross-cultural contexts for working in a "super-complex" world and the development of the "citizen scholar" or "citizen professional" (Barnett 2003 in Rubbo, Brew & Sachs 2007, p. 187) by "fusing horizons … through a critical understanding of one's limits and the genuine differences beyond" (Scriver 1997, p. 52).

"The Global Studio" educational strategy is a situated approach based on dialogue and "learning by doing", "working with people 'unlike us' outside our borders". It enhances an important understanding of cross cultural issues, gender, identity, class and ethnicity as well as the politics of space in the various disciplines of Art, Architecture and Design (Rubbo, Brew & Sachs 2007, p. 189).

An important and established example in Architecture is the *Porosity Studio* (UNSW) where students examine fundamental attributes of contemporary cities and ideas within specific global localities (see STP case studies). This is a cross-disciplinary, project based exchange form of study. Frequently these types of studio models are offered as an elective or non-core offering and not all students are exposed to the learning experience. Other variations include many instances of the more conventional field trips and history tours involving small cohorts with high staff-student ratio conducted out of normal timetable periods. These forms of studio are considered essential practice in other parts of the world, though typically in Australia they are the result of opportunistically taking advantage of situations that may arise albeit recognised by many Schools as intrinsic to good student learning experiences.

The 'cross disciplinary' model

The STP survey asked heads of school if they offered alternatives to the 'traditional studio major' within courses. The question addressed an issue that was expected to apply mainly to Art disciplines. If students undertake interdisciplinary studies they do it through a minor or elective in addition to their major. The aim was to discern a shift into more generic or interdisciplinary studio structures and to reflect professional practice.

Evidence from the responses suggests Architecture and Design disciplines tend not to allow distinct sub-discipline choices within their degrees. Instead, their studio subjects appear to be largely core within a single discipline. Art degrees on the other hand tend to allow students to take quite distinct majors. Given that Architecture and Design disciplines follow a more structured model, there may be fewer opportunities for students to engage in interdisciplinary learning experiences. Of the six respondents from the Art disciplines five indicated that they offer the traditional/dominant 'Major' model. Based on the evidence, there does not appear to be a shift into alternative structures for studio majors at this time.

However there are several notable cases that have received considerable attention. These include: *Project X* (UNSW), an example of a design and build elective that has involved the collaboration of UNSW students from the College of Fine Arts, Faculty of Engineering and the Faculty of the Built Environment in a series of studios (http://online.cofa.unsw.edu.au/online-research/other-online-projects/project-x); *The Wollongong Light and Hope Projec*t (UNSW) - a clubhouse for those with schizophrenia involving UNSW students from Architecture, Interior Architecture, Landscape Architecture and Planning (Corkery et al. 2007); *The Auckland Project* (Auckland University of Technology and University of Auckland) involving students of Architecture, Design, Landscape and Urban Design together with students of Music, Dance and the Performing Arts (Walker 2007). These studios are intended to be open-ended and speculative whilst still involving collaboration and communication across disciplines.

As such this type of model offers a conception of the scope between disciplines that has been shown by Franz and Lehman (2004) to focus on holistic, integrated processes. Such studios are characterised by a 'fluid' relationship between studio participants. Responses to survey questions indicate that the term cross-discipline is applied to a range studio types that encourage an understanding of the relationship between disciplines. It has been noted that most examples of cross-disciplinary studios actually involve situations where "the autonomy of each discipline usually remains in tact" (Franz & Lehmann 2004, p. 12). In contrast, a trans-disciplinary studio (comparable to the examples cited above) encourage students to explore and transcend disciplinary boundaries and frameworks (Franz & Lehmann 2004).

Problems arise in relation to the structure of schools and their degrees. The viability of the number of such studios in Art and Design schools is challenged by resource limitations. This is developing a trend towards merging of sub-disciplines with broader discipline connections blurring the demarcation between disciplines and sectors (Frankham 2006; STP Head of School Survey). The STP Academic Survey found media studies and, to a slightly lesser degree, digital media are areas with the smallest percentages of individuals who reported teaching within only one discipline area. At the other extreme, over 70% of those identifying with Architecture or with Industrial Design indicated they taught only within those areas. Further limitations on these models can be seen in the limits to the breadth of interdisciplinary

activity seldom linked to disciplines outside Art, Architecture and Design with other fields such business, science, and engineering. Compounding this circumstance are inconsistent linkages to industry and a lack of internationally based benchmarking.

The 'blended learning' model

Emergent technology has become a significant complement to and in some instances replacement of the conventional studio model. In conjunction with the alternative practice of incorporating professional 'real time' simulation of learning a 'blended' form of pedagogy is beginning to emerge. A large proportion of respondents (78%) to the STP surveys indicated that they are exploring alternative and more efficient ways of delivering studio teaching, with only 3% disagreeing (STP Head of School Survey, Q10).

Work-integrated learning

Studio is often described as the 'doing' part of a course and considered a critical component of students' learning. In addition to traditional studios, a number of studio teaching practices also provide more formalised professional opportunities for students such as internships for credit and the augmentation of studio teaching with Professional Practice subjects within the curriculum.

The STP Head of School Survey asked participants to outline any professional work-integrated teaching programs or projects offered within courses. Some schools offered no professional opportunities; some provided opportunities but they were not compulsory and others described work-integrated learning as an integral part of their course.

The data shows that almost half of the respondents in Art and Architecture offer professional practice subjects or formal internships. Five out of 15 respondents from Architecture outlined professional internships, as did three of the four respondents from Design. Responses also suggest that internships in Architecture disciplines are more substantial in terms of hours. For example, one participant described a compulsory work placement in second and third year totalling 120 hours. Another described an industry placement totalling a minimum of 90 days.

Further investigation would be needed to understand the extent to which academic quality systems and teaching continue through the process of professional placement components.

Digital interface: the virtual studio

The STP Head of School Survey asked if provision was made for any studio subjects that were supported online along with allied subjects within the curriculum. The mixture of responses from participants suggested interpretations regarding what constitutes online learning/delivery are varied. For example, many academics described the use of WebCT Vista, Blackboard or similar platforms for purposes such as: housing subject guides

and other resources; providing "online support for practice units"; providing "online aids"; providing PowerPoint slides and other lecture material. Other responses suggested that online learning/delivery was being embedded into studio subjects more fully. Examples included:

- The use of online learning activities;
- Tools to promote and enhance communication/interaction between students, and between students and staff (for example, wikis, blogs); and
- Providing feedback to students on tasks.

Some indicated providing theory subjects by "distance mode" while one respondent mentioned a particular studio that was located in virtual space (in Second Life). However the data indicates a relatively small number of online supported studios (that is, less that one-third) were found in all disciplines. The figures suggest that students in Art and Design are very likely to experience online history and theory courses, and that this form of learning and delivery is less common in Architecture.

Overall, the greater portion of subjects offered online in all Art, Architecture and Design degrees were in the humanities field of online history and theory subjects (46%) compared with online studio subjects (25%). On a number of occasions respondents indicated that while they did not currently offer studio or theory subjects online, they were planning to increase their use of online delivery in 2009 and beyond.

Key Findings

1. Four principle characteristics of studio teaching as a mode of learning encompass combinations of: project-based work; learning through praxis; learning through workshop; and learning through first hand observation.

2. Human and physical resources and time for reflection and development are essential elements for all forms of studio teaching. Models of studio teaching can be grouped according to the type and focus of learning activity undertaken: project, praxis, workshop, travel, cross-disciplinary, and blended learning.

Summary

The overview of studio models presented in this chapter provides an indication of the degree of diversity such a mode of education offers. This diversity reflects differences in disciplinary areas and in associations and attachments disciplines have to historical models of studio, in the nature and type of activities associated with studio. However all studios comprise certain components or elements of 'form' that have been identified as 'crucial' by this study.

[engaging students within critical group discourse, the] critique; developing the capacity to think, experiment, reflect and refine …; peer to peer learning; problem-based learning; essential form of student engagement as apart of problem-based and project-based learning; ability to have effective discourse and reflection on visual problem solving with, individual, small or large groups of students.

STP Head of School Survey response

Common to the key characteristics and settings found in current studio models, successful studio learning outcomes could be said to comprise a number of key variables of: people; projects or tasks; facilities and resources; and time. These variables are consistent with the acknowledged essential elements of studio teaching in Art, Architecture and Design, though are utilised differently in response to intentions regarding learning outcomes. Additional diversity can be seen in the mode in which the focus of the disciplines facilitates learning through different studio models.

Tailoring studio learning and teaching to suit learning objectives appropriate to each discipline is an important element of the studio educational milieu. Hence a description and delineation of models for studio learning and teaching constitute a major distinction in the context of this study. Establishing criteria appropriate to each discipline for effective and relevant models of studio will be beneficial in an investigation of the impact of change on studio learning and teaching.

How the circumstances that impact these models have changed or are subject to change is the principal focus of Part Three.

PART THREE

Changes in studio

Introduction

'Studio' is a mode of learning with projects forming the basis of an investigative process driven by research, exploration and experimentation; making and constructing; and critique and reflection followed by refinement. *People* (lecturers, tutors, technicians, members of the professional communities and student peers), *facilities and resources* (space, equipment, technologies and materials), *time* (the proportion of course time provided for studio and hours of access to facilities), and, especially, *projects* (areas of study, tasks and problems to be solved – especially those related to industry/profession), all comprise the key characteristics typically apparent in successful studio programs.

The key question addressed in this chapter is how and why studio has changed over time. The project team utilised available literature, data gathered through forums, surveys and case studies to inform reflection and analysis of changes in Art, Architecture and Design studio. Important catalysts for change have included studio's relationships to industry/professional practice, new emphases on academic research, curriculum development, and academic structures and resources

In Australia, Art, Architecture and Design education has evolved from mechanics institutes, state institutes of technology, technical colleges, and colleges of advanced education, with many degree awards now offered within university structures.

This evolution from workplace/technical to academic/university was instigated in response to government policies and their consequential influence on academic structures and resources. These changes can be broadly grouped around four core aspects of studio teaching: relationships to industry/professional needs and characteristics; trends in Art, Architecture and Design practice and research; trends in curriculum content and form; and trends in academic structures and resources.

The STP Head of School and Academic surveys undertaken during the Studio Teaching Project (STP) sought information about some of the changes, new initiatives and trends being developed within schools and disciplines. Many of the responses contributed examples of good practice which are described in *Volume Four STP Case Studies of Effective Practice*, and as case study reports on the STP website (www.studioteaching.org). The examples presented in response to the survey questions about change and trends varied but are broadly consistent with data gathered from the national forums and the literature. Change and trend issues raised include:

- the utilisation of contemporary technologies (for example, ICT, blogs, on-line);
- return to past studio practices (foundation-type subjects, increased time in studio); and
- some quite timely/useful examples of innovations such as themed studio projects and content, community/work-place projects, curriculum development/refinements, embedding of ethical and sustainability principles, interdisciplinary strategies, intensive/workshop delivery, and introduction of research methods elements within studio subjects.

Relationships to Industry/Professional Needs and Characteristics

The move of Art, Architecture and Design education from technical institutes and colleges of advanced education into universities over the past 30 years has seen a move away from workplace relationships into an academic realm defined by an increased emphasis on theoretical and conceptual content as well as skills development. The current trend is towards a re-balancing of the essential mix of skills development and experiences necessary for learning that prepares graduates for employment within industry/profession. Graduate attributes that recognise transferable skills and that are directed towards the realities of the workplace are increasingly popular and valued by academics and students. The case studies developed within the STP demonstrate broad enthusiasm for improved recognition of the skills needed by applicants to degrees, and those that can and should be developed during the academic program to equip graduates for industry and professional success. As noted by respondents to the STP Head of School Survey:

We have been developing more opportunities for students to participate in work integrated learning: development of professional mentorships as part of the coursework masters program; an internship elective for senior students where students research an organisation and then undertake a project within the organisation and develop a rapport of the experience for assessment; work integrated placements for third year visual communication students.

STP Head of School Survey response

Integration of principles, applications and ethical dimensions in all studio units by embedding sustainability as an essential generic attribute/learning outcome; Comprehensive integration of history and theory and building technology content into design teaching at all year levels.

STP Head of School Survey response

Associations between vocational education and training (VET) and university courses are increasingly common. As Art and Design schools moved into the university realm, VET programs developed to fill a perceived gap in technical and manual skills development – some of the VET courses have developed in strength and breadth to be awarded degree status. This trend has put pressure on university courses and is suspected by some of spreading the Art and Design student load too thinly across sub-disciplines that are expensive to teach and somewhat less popular with potential students, contributing to the sense of threatened viability for some Art sub-disciplines. As recognised by one Head of School:

> *The following are issues in need of serious consideration: … Trends to merging of sub-disciplines (e.g. ceramics with glass, ceramic with sculpture) and broader discipline connections (e.g. art, architecture and design – UniSA, and visual and performing arts – in many regional universities)…*
>
> STP Head of School Survey response

Discussions during the STP have identified a concern that traditional university entry ranking systems tend to undervalue some senior secondary subjects that would benefit potential students considering study in Art, Architecture and Design.

Several examples of joint awards have developed recently – VET and higher education institutions partnering on cross-sector degrees, electives, flexible delivery subjects (summer/winter schools) and workshops. The Bachelor of Digital Media under development as a partnership between the University of Wollongong and Illawarra TAFE is a current example of an innovative combination of learning objectives that straddle the interests of VET and higher education sectors leading to an efficient and innovative studio-based degree. As an example of the mixed feelings held by academics about the association between the profession and the academy, one head of school said:

> *Design professions and universities [are] changing but not necessarily in sympathetic ways – agendas differ.*
>
> STP Head of School Survey response

Work/industry-related studio projects with cross-disciplinary content have been proposed, for example: planning and real estate study programs to enliven engagement, links with industry/real-life projects and the full-scale design and construction of objects. When asked about the main reasons for the success of a particular studio project, one academic responded as follows:

Combination of academic staff and industry practitioners working with final year students to generate original 'real world' multi-disciplinary outcomes presented live before a theatre audience in a public venue plus digital portfolio/show reel.

STP Academic Survey response

Clear and consistent award articulation agreements are needed between education providers that recognise the types of learning opportunities distinctive to VET and higher education sectors. These will contribute to the mix of learning skills needed in graduates and this further suggests that both VET and higher education sectors should consider the potential of joint programs and subjects.

The relationships between academic programs and industry/profession are crucial to ensuring that graduates meet workplace requirements and that research undertaken has application within, and otherwise strengthens, the Art, Architecture and Design disciplines. Work-integrated subjects and/or projects are increasingly recognised as highly relevant to learning in the disciplines of Art, Architecture and Design, and are also an effective means of embedding appropriate and effective graduate attributes. However, it is not evident that award program and subject entry requirements currently adequately recognise technical subjects and skills relevant to industry/professional practice.

Trends in Art, Architecture and Design Studio Practice and Research

The broad disciplines of Art, Architecture and Design have had an uncomfortable fit with academic research policies, reporting systems and funding allocations and programs. There appears to be a greater recognition of research within studio based disciplines in the Excellence in Research for Australia (ERA) criteria for defining and assessing the value of research outcomes. While the ERA promises to immediately increase recognition of the contributions made by studio-based academics, and will most likely lead to new structures for funding ('block' and competitive grants) within universities and from government to universities, the ERA will also demand greater clarity, consistency and accountability from studio academics. As noted by two heads of school:

Relationship between design and research is problematic. However, high-level design practitioners increasingly see their own design practice as research-led – this is positive in the sense that it provides a clear link between the profession and the academy but it is problematic given the difficulties faced by university research organisations and 'DEST' [DEEWR] in accepting design as a legitimate research output.

STP Head of School Survey response

[Within universities, Art, Architecture and Design disciplines are] under appreciated because research output is misunderstood and under appreciated; it does not fit the standards set by Science Faculties.

STP Head of School Survey response

The development of research higher degree (RHD) programs in Art, Architecture and Design has necessitated the study of research methods and theoretical writing by candidates. The skills expected of RHD candidates are not apparent in the research work of all studio academics. An ill-defined tension between industry/professional practice and research practice in studio has not been fully resolved, however the requirements and opportunities presented by the ERA processes will demand substantial changes in the approaches to academic professional practice. Research management, school planning and reporting processes, and research achievements in recruitment and succession planning will be increasingly important. Evidence of studio academic engagement in writing, presenting and publishing papers, articles, chapters and books will be expected alongside evidence of research work as artists, architects and designers in the form of discipline-specific outputs. The changes set in train by the ERA will be reflected in studio teaching and the interdependency of industry/professional and research practice are expected to create a renewed and invigorated nexus with learning and teaching in the disciplines. In response to the current state of Art and Design schools, heads of school noted:

[Academic] focus [is] on practice rather than research; interdisciplinary activity is seldom linked to disciplines outside of Art/Design such as business, science, engineering, ICT, social sciences; pathways to research are modest; modest success rates with competitive grants; no and/or very little international benchmarking; low levels of Industry linkages ….

STP Head of School Survey response

An increased emphasis on research activity by academic staff members, driven by the ERA, will undoubtedly change the typical workload engagement profile for staff. It is to be seen what impact this has upon the teaching aspect of their workload. Potentially, research-active staff may provide better quality teaching that relates to their areas of research – especially for HDR students. Conversely, we may see staff hours directed towards research activity at the expense of undergraduate teaching (fewer contact hours or bigger classes); or, the instigation of 'teaching-only' staff who by definition lack engagement with the forefront of work in the field. Conceivably, this drive may also lead to certain art schools opting to become research-only institutions (although maintaining a Graduate School of HDR students) as it becomes no longer financially viable to maintain an undergraduate program. The long-term consequences of this in Australia – in regard to providing healthy competition between art schools for undergraduate preferences, as well as adequate numbers of graduates to support HDR programs are uncertain.

STP Head of School Survey response

Trends in Art, Architecture and Design Curriculum Content and Form

Art, Architecture and Design studio degrees have become increasingly more formal since the moving into universities, coinciding with a necessary and increased concern that benchmark levels of quality are essential indicators of effective learning. Based on the STP Head of School survey responses, recent trends in curriculum content and form tended to group around four main areas of interest:

- strategies for engagement in feedback and critique;
- utilisation of information and communication technologies (ICT);
- work and industry-related studio content; and
- structural changes to improve effectiveness and efficiency of studio program delivery.

Consistency in the writing of subject outlines, assessment processes (including criterion-based assessment), student feedback processes, peer review and assessment, and workplace-based learning projects are all examples of formalised learning within Art, Architecture and Design. Part Five of this report, which explores issues of assessment in detail, along with

the STP case studies, clearly recognises the trend towards more formally documented and structured degrees and subjects.

Studio in Architecture and Design is usually 'generalised' – the full discipline is taught as a degree award without major options (domestic architecture, commercial architecture, etc.). Whereas in Art it is more common for awards to be structured with major study streams allied to sub-disciplines (painting, glass, textiles, photography, etc.). Perhaps associated with the tendency in Art degrees for multiple major streams, there are also many more degree programs and many variations in the names for degrees that to all intents and purposes are very similar in form, content and intent. The risks of a confused marketplace for both potential students and employers might warrant reconsideration of the efficacy of numerous but similar degrees with slightly differing nomenclature. As one head of school notes:

> *Ours remains the basic/traditional studio discipline groups – with awkward overlaps between photography, printmaking, visual communication and electronic media. Our studio majors (available within most degrees) are: Painting, Printmaking, Photography, Sculpture, Furniture Design, Graphic Design, and Electronic Media.*
>
> STP Head of School Survey response

With the exception of one school/department, all schools of Art represented in the STP Head of School Survey offered degrees with major streams. Those offering three majors or more were all from Art and Design disciplines. The majority of respondents from Architecture disciplines indicated that no majors were offered, only three indicating that either one or two majors were offered.

Significant developments to studio degrees include:

- the use of non-standard semesters for intensive and flexible delivery of studio;
- the introduction of core subjects common to larger groups of students;
- restructuring courses to better integrate (across disciplines, across year levels, and with industry) content with professional contexts; and
- to maximise cost efficiencies, conflation of discipline-specific subjects to establish broadly inter-disciplinary groupings

These developments are captured in the following responses to the question that asked heads of school to outline recent innovations in studio teaching:

> *Cross-disciplinary studio critique opportunities, engaging multiple studios, year levels and areas of staff expertise. Most recently, this was realised through a weekend undergraduate 'Art Camp', where students undertook research and set projects in wilderness locations, and then resolved the work over the following weeks for an exhibition on campus.*

STP Head of School Survey response

Conflation of ideas across disciplines to create core courses for 3rd year where all discipline areas undertake to work on hybrid projects moving towards showcasing their practice outcomes.

STP Head of School Survey response

The 'core studies' subjects ask students to work through a range of projects 'themed' towards learning that will assist them later in the course. Whilst these subjects are reminiscent of the old 'foundation program' from the 1970s, they are much more carefully directed, documented and managed than their rather informal antecedents.

STP Head of School Survey response

Awards and providers

The development of degree programs by TAFE and private providers over the past 10 years signals a significant change in the environment in which studio is taught. This trend has increased competition across sectors, especially given the cost differentials between universities and TAFE and perceptions by university academics about the quality of theoretical components of TAFE degrees. Based on the STP Head of School survey, the trend over recent years seems to be towards an increase in the number of students.

Reports from the heads of school indicated that undergraduate enrolment numbers in university degree programs ranged from 62 to 2,130, with the trend over recent years towards an increase in the number of students. The majority of Art, Architecture and Design schools/departments/programs had between 100-499 students enrolled across the various courses/degrees/awards offered. Two Architecture schools/departments reported student enrolments less than 99. Two schools/departments with student enrolments between 1,000-1,999 were both from the Design disciplines.

To drill further into the Art, Architecture and Design enrolment data, the survey asked heads of school to list the number of undergraduate courses in their school/department/program, including double degrees, and indicate the number of students enrolled in each (at session one, 2008). The number of undergraduate courses listed by participants ranged from one to 13.

Ten participants indicated that their school/department ran one course only, and these were all from the broad discipline category of Architecture. Three participants listed two undergraduate degrees, and these were from Architecture and Design. Nine participants listed between four and seven undergraduate courses and these were from a mixture of Art, Architecture and

Design disciplines. The participant who listed 13 undergraduate courses was from Art.

The number of courses offered by a school/department was not found to be proportionate to the number of student enrolments. For example the school/department with the highest number of courses (13) only had 293 student enrolments and the school/department with the highest student enrolment (2,130) offered five separate courses/degrees.

Significant learning environment changes also include the development of postgraduate coursework awards and research higher degrees (RHD). With the introduction of honours degree options as an additional year's study within Art and Design the loss of the fourth year of degree-level study has been mitigated. Honours-level study is usually embedded within three-year Architecture undergraduate degrees, which generally now have a two-year Master of Architecture degree included. The trend to a 'three plus two' model in Architecture arises from the 'Bologna model' developed in Europe and being adopted by many Australian institutions. The impacts of the Bologna model on honours degrees in Art and Design are yet to be resolved, but a trend to lower honours enrolments, contrasted with increased interest in coursework postgraduate awards suggests a need for some reconsideration of how to best utilise the years immediately following the bachelor degree. This sits in a broader context of the much-extended learning period for those interested in Art, Architecture and Design study. The four-year terminating degree study of the 1970s is now complemented by VET certificate and diploma study, coursework graduate certificates, diplomas and masters, honours, research masters and professional and research doctorates. The learning period is anything from one to 13 years; it is not uncommon for artists to complete both a masters and doctorate, and to also have a degree in a second discipline and/or study in the vocational sector.

The STP survey asked heads of school to list the number of postgraduate coursework awards in their school/department/program, including honours courses degrees. In six of the respondents' schools/departments, no postgraduate awards were offered. The number of postgraduate awards listed by participants ranged from one to six. All participating heads of school who indicated that they offered a single postgraduate coursework awards were from Architecture. However, two Architecture schools offered as many as six awards. Design schools/departments offered either two or three postgraduate coursework awards, and the number of courses offered in schools/departments in the Art disciplines ranged from two to six (STP Head of School Survey).

Coursework postgraduate enrolment numbers ranged from eight to 198. The majority of schools/departments/programs had between 50-99 students enrolled across the various postgraduate coursework awards offered (and these were from a mix of Art, Architecture and Design disciplines). The two schools/departments with student enrolments between 100-149 were from Design disciplines, and the schools with greater than 150 enrolments were

both from Architecture. As with undergraduate degrees the number of postgraduate awards offered by a school/department was not found to be proportionate to the number of student enrolments.

Postgraduate enrolment numbers ranged from four to 65. In seven cases, enrolment figures were not provided or the question was not applicable (that is, the respondents' schools/departments did not offer research higher degrees). Two participants included Equivalent Full-Time Student Load (EFTSL) figures but no enrolment figures.

In the event, it appears that the majority of schools/departments/programs had between 10 to 49 students enrolled in research higher degrees in session one, 2008 (and these were from a mix of Art, Architecture and Design disciplines). The two schools/departments with RHD student enrolments between 50-99 were both from Art disciplines.

Assessment, feedback, critique

Based on STP survey responses and case study examples, changes that have improved feedback and critique include: themed studio projects/content, field trips that provide a fresh environment for reflective and critical discussion; real-life projects and related group work; assessment/feedback/critique by students/peers/clients/professionals that mimic professional workplace situations; and studio programs with embedded principles of sustainability, ethics, social awareness that resonate with students and encourage discussion (see, for example, STP case study: Louise Wallis, Volume Four). The importance of feedback from industry is clearly noted by one STP Academic Survey respondent:

> *It was nice to have an industry expert giving feedback – they [students] paid more attention to him! It made my job somewhat easier because he was very good at giving feedback in the crits and I could just chip in to give specific feedback in terms of the assessment requirements. Students got a kick out of having an industry expert in the classroom and enjoyed the opportunity to engage with a 'real' project. The school is always keen to run industry collaborative projects. The client was very pleased with the ideas that came out of the project – they photocopied all concept sheets and kept them on file for future reference. They also awarded total of $2000 prize money (which the students appreciated).*
>
> STP Academic Survey response

Trends in Academic Structures and Resources

One of the major implicit challenges to studio relates to the impacts of government policies for demand driven education funding on Art, Architecture and Design, especially given the relatively expensive cost of space allocations needed for studio and the ever-important and ever-more expensive ICT requirements of education within the disciplines. Many Art, Architecture and Design academics expressed serious concern that the integrity and viability of their discipline teaching hinges on university budgets and the preferences of potential students and their parents, rather than wider community needs and industry/professional conditions. Losing sub-discipline areas from teaching schedules have significant ramifications for research and professional practice within the disciplines. The frustration within the discipline is demonstrated by this Head of School response:

> *The government and universities do not understand (or want to understand) that teaching design (art, architecture etc) cannot be done through 13, 2-hour lectures to 500 students per semester!! The studio is seen as an extravagant use of space and extremely inefficient teaching resources. It is under serious threat. Tutorial group sizes and the time allocated to studio teaching have, in the past 15 years been seriously compromised. I keep reminding my betters that what they seem to expect is like asking someone to become a great cellist by sitting in a lecture hall for 2-3 hours a week for a semester listening to someone talk about it, when they need one-on-one with a master for seven years.*
>
> STP Head of School Survey response

Trends towards increasing requirements for accountability and quality assurance reflect Commonwealth Government-led requirements seen in the Australian Universities Quality Agency (AUQA, since 2001), the Excellence in Research Initiative (ERA since 2009, which followed the Research Quality Framework established in 2006) and the proposal by the Australian Government to establish the Tertiary Education Quality and Standards Agency – TEQSA – which will regulate academic standards and outcomes. Requirements to monitor and report an increasing range of outcomes and quality control indicators were raised by heads of school as having impacts on time in studio with students. Heads questioned the relative benefits and cost efficiencies of this regime of increased reporting. Heads of school also report serious concern about the reduction in resources considered essential to effective studio teaching. Specifically these include: inadequate income (funding into the university, and that consequently that accruing to the school/discipline unit); pressures on space (Art, Architecture and Design studios generally requires much more space per student than other disciplines and consequently attracts university administrators' scrutiny); staffing (attracting and retaining quality expertise and talent); and staff student ratio (class sizes are often cited as difficult to keep to levels acceptable for studio teaching).

Change typifies the evolution of education in the Art, Architecture and Design disciplines – change from workplace learning to formal courses – changes in the institutional arrangements – changes in curriculum. The constant pressures to change structural arrangements and review courses are also a serious concern for Art, Architecture and Design academics and heads of school. Survey comments addressed both major organisational restructuring (merging schools/faculties) and more modest changes to individual subjects (amalgamation of small subjects – or their deletion from curricula/course schedules).

> *UniSA has decided that bigger organisational units are more resilient in such difficult times and consequently the School of Art is currently being merged with the School of Architecture and Design. There is support for the merger within the schools as staff can see synergies between programs and research foci as well as the advantages of strengths in one school effectively cancelling out weaknesses in the other. However the process is extremely disruptive ....*
>
> STP Head of School Survey response

The University of South Australia experience is especially interesting as it describes drawing together studio teaching in all three disciplines investigated in this project. Nonetheless, funding in some way inevitably drives structural change; the following head of school observation also makes a link with challenges around staffing:

> *Under significant threat from diminishing levels of funding, from difficulties in attracting staff and is being seriously compromised by the shortage of suitable teaching and learning spaces.*
>
> STP Head of School Survey response

Funding and budget

It is clear that studio is a highly valued core pedagogy that takes many forms and is delivered more efficiently in some schools and disciplines than in others. Even so, studio is inherently more expensive than many other disciplines to manage, and the costs have risen significantly with the development in, and integration of Information Communication Technologies (ICT), as core elements of contemporary studio teaching and subsequent industry/professional practices:

> *Architecture Schools should not be captured by the agendas of universities or*

professional practice. Such Schools need to enhance their own agenda to educate and build their alliances within universities and outward to the profession on that basis.

My most serious concern is the diminished autonomy of the School within the University. Decision-making rests with my Dean. Every decision seems to require that I argue again from first principles the particular needs of studio teaching. It is increasingly difficult to argue cases on principle. The underlying problem is that the funding available is not sufficient to maintain our traditional studio teaching practices – the University is not funded to sustain our intensive level of teaching – and historical cross-subsidisation is always under threat and regularly eroded. One key aspect of funding is that professional practice and research do not count in HERDC. This needs to change for creative arts disciplines to thrive in the University context.*

STP Head of School Survey responses

*Higher Education Research Data Collection

There is a pervasive sense among heads of school who contributed to the survey that the conditions of the contemporary university environment may be diminishing the capacity to provide quality learning in Art, Architecture and Design:

The financial pressures are increasing each year putting intolerable pressure on School budgets. We are reviewing and will be redesigning the Bachelor of Visual Arts program in 2009 to make it more efficient as it is becoming too expensive to deliver in its current form. We will need to ensure all classes have more than 18 students/class, however we do not want to drop any of our 10 discipline specialisations ... a tricky problem which we're grappling with at present. Most probably continuing staff teaching workloads will increase and we will reduce our casual staff costs. While the ERA will recognise visual art and design research outcomes which is positive for the sector, the increased emphasis on building quality research outputs while continuing to teach more efficiently and effectively is increasing the workload pressure on staff.

STP Head of School Survey response

Academics report pressure to increase student load to build budgets, but caution that there are significant risks to teaching and learning quality due to workload pressures, inadequate facilities:

Class sizes are getting large and currently we run one-year group (80-90) as a single studio project. This involves a lot of coordination with tutors to ensure that students are achieving a consistent level of input. Breaking the class into separate studios with a range of projects (AA or RMIT** model) could provide more flexibility. However, this requires more unit coordinators, which is a problem in our relatively small school. Getting tutors with the right experience is essential, but also difficult, and being able to pay them enough for their time. The constant pressure to increase class sizes and tutorial staff:student ratio.*

STP Academic Survey response
*Architectural Association School of Architecture (London) **RMIT University (Melbourne)

Declining budgets and resources contrasted with increasing costs are often cited as threats to the quality of studio in Art, Architecture and Design education, often prompting structural change and compromise. Whilst this has led to a sense of unease within the sector, examples of innovative responses to resource challenges present causes for optimism in studio's future as the core characteristic of teaching and learning in tertiary Art, Architecture and Design programs (see the *STC Case Studies of Effective Practice, Volume Four*).

People – staffing, succession planning, development workload

People – active professionally practicing academic staff members are essential to good studio teaching. The Head of School survey elicited comments that demonstrated concern that an aging academic cohort may be hard to replace due to limited capacity (resources) to prepare a new generation of academics.

A great concern in the medium term is the aging of the staff in my School. Since appointments have been very tight for over a decade we have a dearth of young colleagues. We are failing to train and give experience to the next generation of leaders in visual arts education. The proportion of staff over 50 (and over 55, and 60) is high, and I anticipate that the process of change over the next five to ten years or so will be difficult. On the one hand older colleagues will need to be encouraged to go; on the other hand, if the funding circumstances do not change, we will be hard pressed to maintain the number of positions that we now have.

STP Head of School Survey response

Increased access to tutors and technicians outside of class time. This has declined over the last decade and the result is frustrated students and poorer quality project work.

STP Academic Survey response

Facilities and Information Communication Technology (ICT)

Despite evidence of budget pressures and schools' struggle to maintain and upgrade Information Communication Technology capacity, it has become integral to studio teaching and many examples of innovative practices were identified during STP and presented as case studies. Most of the pedagogy innovations, as described in STP survey responses to questions about increasing critical discussion, utilise contemporary technologies. Such ICT

innovations include development of programs and projects incorporating a range of options for facilitating contact between on and off campus students, forums for discussion and utilisation, and adaptation of existing software for use within creative arts studio learning. For example:

> *The online environment has enabled extensive immediate and dynamic feedback from lecturers and peers with greater interaction between teacher and student and student to student. Students have actively accepted and engaged with this new technological approach.*
>
> *Final year students (M. Arch) choose a project within a series of discrete studios (guided selection); using computer gaming technology to explore environments.*
>
> *In recent years the most significant change to our studio teaching practices has been the introduction of new communications technologies into our teaching practices. Mostly this has been through WebCT, where the technology has been used in a variety of ways from simply advising students of course requirements, through to whole projects being set, and responded to, and assessed online.*
>
> STP Head of School Survey responses

Electronic communication among students has become an important aspect of the studio experience, although there are notable differences as outlined in the *STP Academic Survey Report* (Table V2.30) where its use was seen as notably more important in Architecture and Design studios, and less so for Art studios.

Space for studio

> *Traditional art practices are under severe threat in many art schools due to space and delivery issues. Although visual art and performance students fall into a higher funding cluster, this does not cover costs of delivery as net income. As funding issues become more severe there may be a polarising of institutions between those who are well supported and those who are not.*
>
> STP Head of School Survey response

Whenever academics talk about their experiences in studio teaching – and how things have changed over the years – there is one topic that almost inevitably comes up: the availability of dedicated space. The STP Academic Survey data provide a snapshot view of what categories of space, by the sub-discipline of the studio, students had access to as part of the recent studio teaching.

As detailed in the *STP Academic Survey Report*, (see Tables V2.31, V2.32, and V2.33) the variations are significant. Dedicated space was much more common in Art. At the other end of the continuum, there was no dedicated space – for individuals or for the group – in more than half of the studios in the Architecture and Design discipline areas. Architecture studios were notably more likely to make use of 24/7 access to studios compared to the other discipline areas.

In regard to space, the data reveal a pervasive sense of threat among a number of heads of school, typified by the following comment:

> *From 2009, it is rumoured that we will be charged 'rent' for our studio space, which will place additional pressure on our program.*
>
> STP Head of School Survey response

While the need for dedicated space, especially for individual students, varies considerably, it is imperative that efficient use of space is maximised. To this end, flexible teaching in block and intensive modes, in spring, summer and winter periods together with 24/7 access are seen as high priority considerations.

Time in studio

Respondents in the STP Academic Survey were asked to estimate the number and type of hours students were expected to devote to the subject. Not surprisingly, there was some variation in the estimates of time that students would have allocated to different activity settings. (Results are

detailed in the *STP Academic Survey Report* (Tables V2.23-V2.28.) In general, longer hours in studio during staff contact time (and outside of contact time) were more frequent for those in Architecture and Art studios than for Design. The same pattern held for the expectation of total hours to be committed to the studio project on which the academics were reporting.

As with adequate space allocations for studio, time with teachers and technicians is crucial to successful studio – and trends to reduced time with teachers and security and occupational health and safety-related limitations on access are of concern to Art, Architecture and Design academics. There is evident concern that student contact teaching time with academics in studio has been reduced over time. It was common in the 1970s for a full time art school student to have three days per week with their teachers in studio, two in their major studio area and one in their minor studio area – totalling 18 hours; nowadays it is more likely to be six and three hours respectively, totalling nine hours contact.

Key Findings

1. Government funding for tertiary education, consequential university budget allocation policies and increasing discipline costs (especially relating to staffing, ICT and space/premises) have created a sense of threat to the future viability and sustainability of studio teaching. Art, Architecture and Design academics report perceptions that their institutions undervalue their disciplines and studio teaching as pedagogy.

2. Academic workloads are believed to have increased to an unsustainable level, in part because additional administrative and quality assurance requirements result in reduced time for teaching and learning, and thereby threaten the quality of studio teaching.

3. Contemporary government policies recognising academic research that arises from studio practice present challenges and opportunities for Art, Architecture and Design academics. Responses to these challenges must be balanced and integrated with the need for quality teaching and learning.

4. Studio content in some award programs has moved from the practical considerations of professional practice towards conceptual and theoretical development, leaving a sense of imbalance – practical and technical skills are under-taught and undervalued, especially in some of the traditional Craft areas.

5. The integration of studio projects within work and industry contexts, frequently with multidisciplinary emphases, is often cited by academics as integral to successful learning outcomes and the embedding of essential graduate skills.

6. Good commencing students in Art, Architecture and Design demonstrate a mix of manual, technical, conceptual and personal skills. Standard Tertiary Entrance Ranking systems are thought to preference academic achievement and not appropriately recognise more discipline-specific preparatory study and skills.

7. Developments in senior secondary school and Vocational Education and Training (VET) curricula and the introduction of postgraduate coursework and research study present an extended learning period that has not been fully evaluated and utilised by Art, Architecture and Design educators. Coursework and research higher degree and VET awards (noting that some TAFEs offer bachelor degrees in Art, Craft and Design disciplines, for example, TAFE SA's Bachelor of Visual Arts and Design) developed over the past 20 years have exacerbated concerns about duplication and encourage clarification of the content and purpose of each stage of the learning experience (especially as complementary and developmental components of learning pathways).

8. There has been a loss of some traditional Craft sub-disciplines from the (major) offerings in Art degree programs, leading to a concern that further sub-disciplines are at risk of being lost in states at the higher education level.

Summary

STP Head of School and Academic Survey responses revealed significant concerns about the current and future viability of studio teaching. These concerns demonstrate a general sense that studio remains crucial to the disciplines, but that it is undervalued by institutions. Academics reported that changes and trends in funding, enrolments, staffing (especially development and workload), administration and quality assurance planning and reporting contributed to a climate of unease and pessimism in many Art, Architecture and Design schools. These concerns contrast with a number of examples of quite positive developments in relationships with industry/professional practice, research, contemporary technologies, pedagogic innovations, and cross sector and cross discipline initiatives. The immediate challenge will be to make the examples of positive change available to academics and to promote their take up. In order for the take up to be successful, institutions offering learning in Art, Architecture and Design need to be encouraged to accept the nature, value and associated costs of studio teaching.

Drawing on the literature and data gathered from forums, surveys and case studies of effective practice, this chapter has identified four broad areas of

change in studio: relationships to industry/professional practice; academic research; curriculum development; and structures and resources. Trends and innovations in these areas have been examined according to a number of key characteristics of studio – people, facilities and resources, projects and time.

The next chapter of the report draws together the evidence to examine which approaches to studio are considered most effective and why.

PART FOUR

Effective studio

An important aspect of the Studio Teaching Project was to identify effective approaches to studio teaching. The project used a number of means to gather information about effective approaches to studio including the STP Academic Survey, STP Head of School Survey and National Studio Teaching Forums. Information gathered from these sources was then used to develop a collection of case studies of effective practice in studio in the discipline areas of Art, Architecture and Design. These examples have been developed to both inform emerging studio practices and reinvigorate established studio practices.

This chapter summarises the findings of previous chapters, drawing on what academics and heads of school consider to be the qualities of successful studio teaching and the best outcomes in studio. It also reports on the case studies of effective practice, which were developed from examples provided in the studio teaching surveys and forums.

Based on all of the information gathered throughout the Studio Teaching Project about effective practice in studio, a series of benchmarks are presented in this chapter that can be used by studio teachers to reflect on their practice, or as a checklist for those involved in curriculum design, development and review.

How do we know which approaches are most effective?

A number of questions in the STP Academic and Head of School surveys were included to gather information about what academics and heads of school considered to be the key qualities of successful studios. For example, the STP Academic Survey asked respondents to rate how successful a selected studio project was (that is, the most recent studio in which they were involved) from a range of different perspectives. They were asked to list the main reasons for the level of success of the studio project, and to outline what they believed to be the essential components of an ideal studio experience that would be most likely to lead to the best outcomes for students.

The STP Academic Survey also asked respondents to define the “best outcomes” of a studio experience. For this question they were asked to consider studio teaching more generally rather than limiting their answer to the studio they selected as a focus for many of the items in the Academic Survey. Responses to a further question looked at what they considered to be the best studio experience they had as a teacher.

Similarly, the STP Head of School Survey asked respondents what they regarded as the most crucial qualities of successful studio teaching, and to outline any recent innovations within studio teaching in their programs.

In terms of developing case studies for the Studio Teaching Project, effective practices were identified by reports of high levels of student satisfaction, high industry regard for graduates of particular courses, and high levels of staff satisfaction and engagement. Descriptions of effective practice address teaching techniques, and organisation and creative solutions to challenges that arise in the practice of studio teaching in the disciplines of Art, Architecture and Design. Examples of effective practice cover diverse areas such as: feedback and assessment; first year learning; interdisciplinary learning and teaching; experiential learning; technology-enabled learning and teaching; industry-related projects; and studio management. Case studies representing many models of studio teaching are described in *Volume Four: Case Studies of Effective Practice.*

Collectively, the survey responses and case studies provide substantial evidence about what academics and heads of school believe to be the most important qualities of successful studios, and which approaches are most effective in terms of the quality of the student learning experience. The complete reports for the STP Academic and Head of School surveys – *Volume Two: STP Academic Survey Report,* and *Volume Three: STP Head of School Survey Report* – are integral components of the overall Curriculum Development in Studio Teaching research project and should be read in conjunction with *Volume One: STP Final Report*. All four volumes are available on the STP website: www.studioteaching.org.

The key qualities of successful studios and major components of an ideal studio experience identified by respondents to the STP surveys are presented according to the framework presented in Part One of this report:
1. Studio is a culture, a creative community;
2. Studio is a mode of teaching and learning;
3. Studio is a program of projects and activities; and
4. Studio is a physical space or constructed environment.

It is not suggested that this is the definitive way to frame components of effective practice in studio, but rather it is used to illustrate that qualities of effective practice relate to a number of different disciplines and circumstances. The qualities identified in each of these areas are summarised at the conclusion of this chapter as a series of benchmark statements for effective practice in studio.

1. Studio is a Culture, a Creative Community

Four of the key factors contributing to successful and effective studios identified by respondents (in STP surveys and by forum participants) contribute to the development of *studio as a culture, a creative community*.

These include: creating a positive studio environment; quality staff; reasonable class and group sizes; and student engagement and commitment.

Positive studio culture

Creating a positive studio culture and social environment was identified as an especially important factor by academics in describing the essential components of an ideal studio experience, Depending on the way in which responses were categorised, having a positive studio atmosphere/culture rated either first or second among the reasons put forward by the responding academics (STP Academic Survey, Table V2.48 and V2.49). Other key reasons, like the quality of studio projects and the quality of teaching and of staff, will be noted in more detail below. As far as encouraging a positive culture, in many cases, respondents' comments referred to the importance of building a community of learners:

> *[an ideal studio experience is] one where all participants – students, staff, community/client are active learners*
>
> *Creating art community – encouraging students to work in studios, at all levels which in turn promotes the art environment*
>
> *… an engaging and well supported curriculum which generates a sense of 'studio community' in the students, through discussion and study groups*
>
> STP Academic Survey responses

Academic Survey respondents also noted the role of a positive studio atmosphere among the reasons for their own best studio experiences (refer Tables V2.52 and V2.53). In that context, positive studio atmosphere and dynamics often referred to a cooperative, creative and/or critical studio culture. This included good relationships, rapport and trust between students, the creation of a comfortable environment, productive group cooperation, and productive and valuable feedback. These factors are reflected in the following comments:

… there was an atmosphere in which they trusted themselves and me to experiment with their ideas, students supported each other, they were fully engaged – 'into it'.

But over and above such arrangements, by far and the most rests within the dynamics between students and their lecturer and ambition they bring to the studio/class room.

… group dynamics in which the individual progress of a student becomes the interest of all

STP Academic Survey responses

Quality of staff and teaching

Most respondents to the STP Academic Survey were highly experienced teachers. Two-thirds had taught in a university setting for 10 years or more, and nearly that proportion had also been involved in studio teaching for 10 years or more. Significant numbers have been involved in first-year studios on though postgraduate studios, with somewhat higher proportions of experience in the undergraduate years. Just over 80% indicate that they are employed on a full-time basis. At least as noteworthy as the years of teaching experience is the extent to which these respondents have also maintained a link to non-academic professional activities, and almost 70% had 10 or more years' experience of professional practice. The importance of the linkage between practice and teaching was reflected in responses in the Academic Survey where over half of those responding indicated that continuing professional practice activities were indispensable to their studio teaching (STP Academic Survey, Table V2.5). Those teaching in the Art discipline area were most likely (79%) to consider their links to practice "indispensible", those in the Architecture discipline areas, least likely (33%).

Teaching quality was an important reason given by respondents in relation to the success of studio projects (STP Academic Survey, Table V2.46). As noted by one academic:

… the students have access to good staff who are active practicing artists who often go beyond the call of duty to help students.

STP Academic Survey responses

Staff and teaching quality were also identified as strong contributors to an ideal studio experience (STP Academic Survey, Tables V2.48 and V2.49). Responses recognised the importance of high quality, committed and enthusiastic staff, and staff with an appropriate balance of professional and teaching experience:

> *… enthusiastic, committed staff who are able to model (enthuse via) professional outcomes/experience/success.*
>
> *Staff skilled in relevant discipline; staff skilled in Teaching and Learning.*
>
> STP Academic Survey responses

Although challenging programs and quality projects are central aspects of successful student outcomes, it is clear that this cannot happen without staff and students being committed and engaged. Since the abilities and motivation of students vary, high quality projects, as defined earlier, may require a lot more effort from staff to nurture students. If this is not properly taken into account, challenging projects can be a double-edged sword. Without the contributions of quality staff, students may experience challenging projects and independent learning as negative learning experiences.

High-quality staff were also recognised as a contributing element for some respondents' best (overall) studio experiences (STP Academic Survey, Tables V2.52 and V2.53). In addition, quality of staff emerged as a key theme in response to the STP Head of School Survey. Heads of school highlighted the need for having capable teachers with professional practice experience and teaching skills; as well as having engaged students with commitment, talent, initiative and ambition; expert technicians skilled in the techniques and processes of industry/discipline; and a collaborative community within which ideas are developed, tested, applied, discussed and refined.

In addition to rating the relevance of professional practice to studio teaching, the STP Academic Survey asked respondents to describe a recent example of a link between their professional practice and their involvement in studio teaching. 173 of the survey's respondents commented in response to the probe: "What is a recent example of a link between your professional practice and your involvement in studio teaching?" Two categories were identified. Most commonly, responses suggested that, at a relatively generic level, an academic's own professional practice does help teaching practice. It informs teaching practice by providing staff with experience and expertise in the area, a view explored, for example, by Sweeney (1991) in his essay on 'The Education of a Painter'. In the STP Academic Survey, one participant put it this way:

> *This kind of work (professional practice) continues to provide me with the necessary*

experience and expertise, which translates well into studio teaching models.

STP Academic Survey response

The next most mentioned link between professional practice experience and involvement in studio teaching was related to enabling staff to connect students with the profession.

The experience provided staff with extensive and up to date knowledge and materials that directly contributed to the teaching process. For instance, one participant stated:

I was recently involved in the development of new processes for painting with fibrous pigments which I was immediately able to pass on to my textile students, giving them another material and process which they can modify for the fashion industry.

STP Academic Survey response

In addition to the direct contributions to studio teaching made by professional practice such as teaching examples, up to date knowledge, and techniques and materials, professional practice was considered to indirectly benefit studio teaching by giving staff credibility and classroom authority. As one participant mentioned:

Good practice gives you credibility in the eyes of the students; if you are making fine architecture then you can demand and expect the same aspirations from them. Students are very good at seeing the disconnect between what you say and what you do.

STP Academic Survey response

The other main benefit of professional practice was that it enabled staff to connect students with the profession. For example, there were opportunities for students to become involved in professional projects. During a project, external professionals who the staff kept in contact with when they practiced professionally were likely to be invited as guest lecturers and critics. At the end of a project, an academic's connection with industry could also help students to fabricate products:

Through my connections with industry I have been able to help students get their designs fabricated and developed.

STP Academic Survey response

In addition, academics noted that the connection with industry was valuable in terms of helping them to find internships and holiday work for current students, and employment for graduates.

Reasonable class and group size

Having a reasonable class and group size was one of the most frequent mentions (30% overall) when academics were asked about their best studio experiences (STP Academic Survey, Table V.52). Often comments about class size were coupled with comments about opportunities for better connection amongst students and between staff and students, functional work groups, mentoring opportunities, designated studio space, access to resources (like computer equipment), and opportunities for students to receive more in-depth technical advice and support.

Responses to the STP Head of School Survey also highlighted the importance of opportunities for one-to-one teaching and small classes, and access to facilities outside as well as within formal timetabled classes. Reasonable class and group size can be seen as an important contributing factor to a positive studio environment and culture.

Student engagement and commitment

The capability and commitment of students (along with collaborative activities such as peer critiques, discussion and skill sharing) was also recognised by academics as contributing to the success of studio projects (STP Academic Survey, Tables V2.46 and V2.47). Staff commented on the importance of a high level of student motivation, enthusiasm and commitment.

Responses within the STP Head of School Survey also highlighted a number of personal qualities that are sought in students who enrol in studio, including:

- Passion, rigour, initiative, motivation and intuition;
- Engagement, tenacity and commitment;
- Resourcefulness, self-reliance and independence;
- Problem solving, lateral thinking and flexibility;
- Communication, team work and self-reflection; and
- Ethical conduct and respect.

Mirroring respondents' reasons for the success of their studio projects, students' own effort and commitment was recognised by respondents as an essential component of an ideal studio experience:

I think this depends on the calibre of the student (an enthusiastic student is worth 10 non-enthusiastic ones).

Students [are] excited by the project and enthusiastic about developing design solutions, they engage with their peers and lecturers in broad-ranging and focussed discussions.

[what is required is a] sense of collective effort and individual motivation.

STP Academic Survey responses

The importance of having high quality students was mentioned often in respondents' comments about their best studio experiences. Students' motivation, commitment, and abilities were considered to be key factors:

The experience stands out particularly because many of the students continued working into evening, had some food and drink and wide-ranging discussion about the nature of art, censorship.

The ones that stand out for me stand out more because of the talent and ability of a particular group or groups of students.

When the students are mature and committed enough to fully engage with project requirements so that my role can become one of facilitator, mentor and collaborator.

STP Academic Survey responses

Data from the STP Academic Survey (Table V2.28) suggest that academics have high expectations of students in terms of the time they are expected to commit to studio subjects and projects. For example, over 30% of respondents indicated that they expect students to work on their studio projects for six to 10 hours per week; a further 42% indicating that they expect students to work on their projects for somewhere between 11-20 hours per week.

Also on the topic of students, it is of interest that one-quarter of respondents to the Head of School Survey agreed or strongly agreed that they were "unable to accept some good potential students". However, half of the respondents agreed or strongly agreed that some of their student intake is below the standard they would wish. Nearly 40% of respondents agreed or strongly agreed that they felt pressure to accept applications for their course by people who are below the standard they would wish. For each of the three questions noted above, 21% of respondents remained neutral (see Table V3.16).

2. Studio is a Mode of Teaching and Learning

Two of the key factors contributing to successful and effective studios identified by respondents' (in STP surveys and forums) contribute to the development of *studio as a mode of teaching and learning*. These include: high level of interaction; and effective collaborative activities amongst students.

High level of interaction between students and staff

A high level of interaction between students and staff was recognised by academics as a particularly important factor in terms of what makes a studio project successful (after quality projects):

> *I emphasise that it was the mature and stimulating human interaction that was a chief factor in the excellent outcome of this studio.*
>
> *… continued discussion, engagement and feedback between staff and students and student group collaboration.*
>
> STP Academic Survey responses

Interestingly, while interaction and communication is highly valued, the STP Academic Survey suggested that electronic communication was not considered to be "very important" by many in relation to their studio project. For example, in terms of the studio on which the academic respondents were reporting, electronic communication was generally considered to be "somewhat important", or "important for some students but not for others" (see Table V2.30); a higher proportion in Art reporting that electronic communication was "not very important" compared with other discipline areas.

While feedback is recognised as a fundamental component of staff and student interaction, responses to feedback items on the STP Academic Survey suggest considerable variety in the type of, and extent to which, formative, summative, peer-to-peer, and external expert feedback is incorporated into the studio experience. Results suggest that one-on-one oral feedback during a studio project at nominated points was common in all discipline areas (see Table V2.35). Oral feedback provided one-on-one at the completion of a project was less common across the discipline areas and, with the exception of Multidisciplinary studio projects, occurred in less than 50% of cases. Overall, just under 70% of respondents indicated providing oral feedback for critiques/reviews during the project at nominated points. Approximately half of all respondents reported providing oral feedback to students for critiques/reviews at the completion of the project.

Results suggest that the provision of written feedback is more likely to occur at the completion of a studio project than during, and that it is less common for academics in Art and Design disciplines to provide written feedback during projects than in Architecture disciplines or Multidisciplinary studio contexts. Respondents teaching Multidisciplinary studios appear to be more likely to provide written feedback on completion of a project than respondents in other discipline areas.

Interactions with students also emerged as a theme in respondents' descriptions of their best studio experiences (STP Academic Survey, Table V2.53). The importance of interaction between staff and students in studio is substantiated by discussions about effective practice at the Studio Teaching Forum in 2007 (see Forsyth, Zehner & McDermott 2007).

While academics did not always consider electronic communication especially important within the studio they selected to report on in the Academic Survey, many of the innovations described by heads of school aimed at increasing critical discussion through the use of contemporary technologies. Information and communication technologies (ICT) innovations included the development of programs and projects incorporating a range of options for facilitating contact between students and staff, and between (on and off) campus students. Forums for discussion and utilisation and adaptation of existing software for use within creative arts studio learning were also mentioned. For example:

> *The online environment has enabled extensive immediate and dynamic feedback from lecturers and peers with greater interaction between teacher and student and student to student. Students have actively accepted and engaged with this new technological approach.*
>
> *In recent years the most significant change to our studio teaching practices has been the introduction of new communications technologies into our teaching practices. Mostly this has been through WebCT, where the technology has been used in a variety of ways from simply advising students of course requirements, through to whole projects being set, and responded to, and assessed online.*
>
> STP Head of School Survey responses

Examples of innovative strategies for improved feedback and critique (from responses in the STP Head of School Survey) included: themed studio projects/content; field trips that provide a fresh environment for reflective and critical discussion; real-life projects and related group work; assessment/critique/feedback by students/peers/clients/professionals that mimic professional workplace situations; and studio programs with embedded principles of sustainability, ethics, and social awareness that resonate with students and encourage discussion. An example of a recent innovation from one head of school included:

> *Cross-disciplinary studio critique opportunities, engaging multiple studios, year levels and areas of staff expertise. Most recently, this was realised through a weekend undergraduate 'Art Camp', where students undertook research and set projects in wilderness locations, and then resolved the work over the following weeks for an exhibition on campus.*
>
> STP Head of School Survey response

Effective collaboration among students

Collaborative activities such as peer critiques, discussion and skill sharing (along with the capability and commitment of students) were seen to contribute to the success of studio projects:

> *Group discussion is very important in the program and I am always looking for better ways to expand this.*
>
> STP Academic Survey response

Collaborative activities were rated highly in terms of contributing to successful studios, and the STP Academic Survey revealed that group work of various forms was expected to take place in almost half of the selected studios (see Table V2.22). Group work was most often expected in Multidisciplinary studios (73% of those studios). By far the most prevalent expectation – the case for over 70% for all discipline areas – was that students would need to work on an individual basis at some stage as part of the studio project.

Peer-to-peer feedback is another type of student interaction/collaboration. Overall, over half of the respondents indicated using peer-to-peer feedback *informally* during the semester. Just over 40% indicated using peer-to-peer feedback *formally* during the semester (not included in marking), although results suggest that this is less common in Architecture disciplines than other discipline areas. Only five per cent of the selected studios overall did not include any provision for peer-to-peer feedback.

Discussion at the Studio Teaching Forum in 2007 also focussed heavily on the role of collaboration in studio. Participants recognised the role of collaborative learning, peer review and evaluation, as well as interaction with people in industry (Forsyth, Zehner & McDermott 2007).

3. Studio is a Program of Projects and Activities

As discussed in Part One, studio teaching relies on the framework of a 'studio program' as a vehicle for interaction. Given the significance of studio to the curriculum, it is important to understand how studios are currently organised and how they relate to the balance of a program of study. The most recurring characteristics relate to: interactions between students, integration of disciplinary skills, and the capacity of studio tasks to mirror the complexities of professional practice. Three of the key factors contributing to successful and effective studios identified by respondents (in STP surveys and forums) contribute to the development of *studio as a program of projects and activities*. These include: quality projects; connection with industry and the profession; and variety of outcomes.

Quality projects

The quality of the studio project was identified as the most important reason for the success of studio projects (STP Academic Survey, Tables V2.46 and V2.47). Responses suggested that a significant feature of a quality project was its relevance to the real world. The importance of high quality studio projects is reflected in the following responses:

> *[The main reason for the success of the studio project was a] combination of academic staff and industry practitioners working with final year students to generate original "real world" multi-disciplinary outcomes presented live before a theatre audience in a public venue plus digital portfolio/show reel.*
>
> *The students found the research strategies and the project stimulating.*
>
> STP Academic Survey responses

Respondents also commonly identified the quality of studio projects as an essential component of an ideal studio experience (STP Academic Survey, Tables V2.48 and V2.49), and to a slightly greater degree in the broad Architecture discipline area.

Relevance, clarity and flexibility were three of the main factors associated with quality projects contributing to an ideal studio experience. Relevance was considered to be the key to increasing students' motivation and skill development. For many respondents, the clarity of a project was seen as imperative, that is, the clarity of expectations, assessment methods, and briefs to ensure that students understand what is required for their studio projects. Projects that were flexible, in terms of responding to the individual needs of students, were also seen as contributing to quality projects. The importance of relevance, clarity and flexibility is reflected in the following comments:

Excellent projects that lead to outcomes – particularly in the first 18 months (visual arts). What does excellent mean in this context? By excellent I mean successfully inspiring the student, expanding their understanding of the field introducing the various possibilities that the field of study can offer.

Clear structuring of educational aims, tasks, assessment in projects. Multi-layered projects that allow each student to pursue issues of interest and relevance to their skill development.

… interesting projects well supported with site visits and relevant guests, dynamic crit sessions, skills training support, fabrication support.

Real projects in collaboration with industry or community groups.

Practical projects with real world applications.

STP Academic Survey responses

Heads of school also identified quality projects as a major factor in successful studios (STP Head of School Survey). For example, heads of school highlighted the importance of student-centred projects that encourage peer-to-peer learning; projects related to workplace and industry and real world problem solving; projects that inspire, stimulate and challenge; and projects that emphasise process rather than outcome.

The 'real world' quality of a project may refer to its practical nature or the fact that it mirrors professional projects and tasks by introducing, for example, a real or imaginary client, budget or context, or by addressing existing projects and situations. Real world projects, especially those that relate to the multidimensional aspects of workplace or industry, are often seen by students as more engaging, and thus more likely to stimulate their interest – itself a key factor in a successful studio. Such projects are also seen as enhancing the development of critical skills in students through the in-built dialogue that comes from the introduction of real world elements, such as a genuine client in architectural, design or public art studios. Real world projects also tend to be more complex, and less able to be restricted and delineated. There are a number of consequences of this complexity, one being the introduction of interdisciplinary or cross-disciplinary aspects into the studio. The Studio Teaching Project case studies provide a number of examples of real-world interdisciplinary projects (see Volume Four).

Complex real world problem solving in a project is also seen as introducing a density and challenge to the studio that requires experimentation, collaboration, playful and imaginative responses, and a genuine integration of theory and practice.

In the context of the other qualities of successful projects (stimulating and challenging, student-centred and focussed on process) we can see that addressing real world issues is not an alternative to these qualities, but a common means to achieve them. Projects that challenge a student's previous approaches, that require collaboration and the integration of approaches and understandings, and 'stretch' students while also engaging them, are clearly critical to successful studios across all disciplines, whether or not they are anchored in 'real' scenarios.

High quality projects were also mentioned most often in respondents' descriptions about the best studio experiences they have had (STP Academic Survey, Tables V2.52 and V2.53). The frequency of comments was particularly evident in the Architecture discipline area, noted by close to 40% of those respondents. The importance of the quality of studio projects is expressed in the following comment:

> *Class size: 42, staff: 2 (still too many students to get around to) … Studio facilities – poor, but we manage – all crammed into one room, with nowhere for work-in-progress to safely be stored. Why special? Exciting project.*
>
> STP Academic Survey response

In commenting on best studio experiences, respondents focussed on two aspects of quality projects – intrinsic and extrinsic. The intrinsic qualities of a project included well defined project learning objectives, contextually relevant projects, a focus on learning activities and experimentation, challenging components, complex and intense but achievable projects, and group oriented projects with attention to individual needs and interests. The extrinsic qualities included engagement with external parties such as industry professionals and clients, and fieldwork such as site visits and travel opportunities. As observed by the following respondents:

> *The best studio experiences have been those which involved physically taking students into a client's world which is totally unfamiliar to them, giving them a brief, and letting them understand the client's culture over an extended period of time. We have taken students to cotton farms, abattoirs, national parks, etc. The outcomes of these projects are always more considered and resolved.*
>
> *It was great to engage closely with the gallery staff and connect students with a facet of the private professional arts industry.*
>
> *Community feedback is what makes the events 'special'.*
>
> STP Academic Survey responses

Discussion at the Studio Teaching Forum in 2007 also focussed on the importance of quality projects. Participants' discussion about effective practice in relation to studio pedagogy included ensuring that students were fully engaged in the process rather than being passive recipients of their learning. They described the following components as important with regard to pedagogy: reflection and evaluation; the development of students' thinking over time; giving students an awareness of the context in which they are making their work but encouraging individuality; engaging staff in learning new learning and teaching ideas and practices; and an emphasis on hands-on practice (Forsyth, Zehner & McDermott 2007).

Connection with industry

Respondents recognised connection with external clients and industry experts as being an important factor in the success of studio projects. For example:

> *Students got a kick out of having an industry expert in the classroom and enjoyed the opportunity to engage with a 'real' project.*
>
> *The industry partner was extremely happy with the transferable, innovative applications to their business.*
>
> STP Academic Survey responses

The STP Academic Survey (Table V2.41) showed that external experts and examiners were an aspect of over 60% of studios overall and were used most often in Architecture disciplines (nearly three-fourths of those studios).

Connections with the external world, such as partnering with industry experts, clients and site visits, were also identified by some respondents as an essential component of an ideal studio experience (STP Academic Survey, Tables V2.48 and V2.49). The importance of connections with external experts and clients is reflected in the following comments:

> *A vibrant studio culture which features extensive interaction between students, staff, and external experts at all stages of the design process.*
>
> *Clients who are prepared to work within the constraints of university timetable, with students, attend presentations and provide feedback, consultation and meaningful projects for the students to work on.*
>
> STP Academic Survey responses

Participants at the Studio Teaching Forum in 2007 acknowledged the importance of real world relevance in studio learning and teaching; in particular, ensuring that students are aware of how their studio practice relates to other components of their degree (Forsyth, Zehner & McDermott

2007). The 2008 Forum expanded on these issues in the context of assessment, the importance of assessment criteria, and of giving students an integrated sense of how criteria relate to other subjects and to graduate attributes (Zehner et al. 2008).

Work/industry-related studio examples (as identified in the STP Head of School Survey) proposed cross-disciplinary content, for example planning and real estate study programs to enliven engagement, links with industry/real-life projects and full-scale design and construction of objects.

> *We have been developing more opportunities for students to participate in work integrated learning: development of professional mentorships as part of the coursework masters program; an internship elective for senior students where students research an organisation and then undertake a project within the organisation and develop a rapport of the experience for assessment; work integrated placements for third year visual communication students.*
>
> *Integration of principles, applications and ethical dimensions in all studio units by embedding sustainability as an essential generic attribute/learning outcome; Comprehensive integration of history and theory and building technology content into design teaching at all year levels.*
>
> STP Head of School Survey responses

Structural changes to studio courses (also identified in the STP Head of School Survey) included the use of the non-standard semesters for intensive and flexible delivery of studio and the introduction of core subjects common to larger groups of students. Structural changes also involved the restructuring of programs to better integrate (across year levels, across disciplines, and with industry) content and links to professional contexts, and to maximise cost efficiencies, and conflation of discipline-specific subjects to establish broadly inter-disciplinary subjects.

> *Conflation of ideas across disciplines to create core courses for 3rd year where all discipline areas undertake to work on hybrid projects moving towards showcasing their practice outcomes.*
>
> *The 'core studies' subjects ask students to work through a range of projects 'themed' towards learning that will assist them later in the course. Whilst these subjects are reminiscent of the old 'foundation program' from the 1970s, they are much more carefully directed, documented and managed than their rather informal antecedents.*
>
> STP Head of School Survey responses

It should be noted that many of the other key factors identified by academics and heads of school in relation to successful studios (in addition to connection

with industry and professional practice) are typical qualities of a studio program. For example, as suggested in Part One, the studio program involves active engagement by all studio participants in the making of knowledge. This active engagement includes collaboration, interaction, inquiry, and learning by making/doing; all key characteristics of the studio program.

Variety of outcomes

Although much of the focus in defining studio teaching focuses on the characteristics of the studio – its use of space, time, and the distinctive nature of its curriculum – it is also often characterised by the distinctive nature of student learning outcomes, irrespective of the particular variety of spaces, projects and teaching approaches used. A detailed study about indicators that can be used to assess good learning outcomes in studio is presented in Part Five of this report.

At the Studio Teaching Forum in 2007, participants identified a variety of learning outcomes as 'good' in studio teaching including: problem solving (finding creative solutions), independent thinking and learning, risk-taking, critical thinking and evaluation, contextual awareness (ethical, cross-cultural, historical, theoretical), research capability and reflection (Forsyth, Zehner & McDermott 2007). The focus on "risk-taking" by students is noteworthy, and the related ideas of "independent thinking" and learning, "problem solving", creative solutions and "critical thinking" (p. 12). From this perspective an effective studio model becomes one that encourages students to take risks, explore new ideas, challenge assumptions and learn to give and take critique. For example:

> *The studio environment offers an unparalleled opportunity for creative discovery, exploration of ideas, critical discussion, and risk taking. Above all, students find that the studio environment offers a strong community where life long professional friendships are cultivated.*
>
> STP Head of School Survey response

For many studio educators the practical, 'hands-on' learning environment of the studio, with the time to develop ideas and the impromptu, less structured, interaction with peers and staff, provides the environment in which the key learning outcomes of creativity, conceptual adventurousness and critical awareness take place.

Studio teaching provides: an experimental learning environment; supports learning by doing – making, experimenting and direct engagement in process; opportunities for immediate formative feedback – direct guidance and support for students; collaborative space; environment for peer-to-peer learning – exchange of ideas and techniques; ability to deliver content in different manners – lecture, presentation, discussion, debate etc.

STP Head of School Survey response

As noted, one of the open-ended questions in the STP Academic Survey asked respondents to define the "best outcomes" of a studio experience. For this question academics were asked to consider studio teaching more generally rather than limiting their answer to their most recent studio teaching experiences.

Overall, the intangible outcomes (or soft skill outcomes) of the studio were considered the most significant, with 47% of those surveyed highlighting students' knowledge, abilities and skills as components of the best outcomes in the studio (see Table V2.50). In relation to the development of intangible outcomes (such as knowledge and skills) respondents referred to knowledge about contemporary practice, the ability to work effectively in groups and reflect on methodologies, the development of creativity, problem solving, and communication and technical skills. The importance of outcomes related to process is expressed in the following comment:

… a purely vocational education fails to give the students a contextual framework and awareness of the world required of a designer. Therefore they need to be exposed to a liberal education where cultural and social influences can be reflected within their practice… Teaching students about their ability to engage and make a difference to the world we live in requires design to be contextualised into a social and cultural framework.

STP Academic Survey response

The second most important element recognised by respondents was the development of tangible outcomes. Many of the respondents' comments mentioned the effective art/design product as one of the best outcomes of a studio:

… quality product with students being able to provide objective evaluation of both product and process

Well-integrated and thoughtful product (in this case a piece of architecture).

A polished product and high degree of camaraderie amongst the students.

Extending the student's work beyond the expected outcomes of the brief, resulting in innovative and engaging art/design works.

Good design down to detail and the student finding or beginning to find their own style.

STP Academic Survey responses

The third most common category of comments by respondents in terms of best outcomes related to beneficial experience in the learning process. While the previous two categories related to 'process' and 'product' dimensions, this group of comments related to 'person'. For example, many respondents referred to the importance of building students' confidence and empowering them to continue their learning and practice:

… where the student demonstrates a developed sense of individual agency (autonomy, confidence etc) and starts to see their learning experience as their practice.

That the student feels validated and worthwhile – no matter what level they achieve in this challenging and sometimes intensive subject.

Students empowered to think and gain confidence as well as stretch outside their knowledge base.

Growth in the students' conceptions of themselves as designer and what that encompasses.

STP Academic Survey responses

The STP Academic Survey also asked respondents to indicate the degree to which their studio project achieved the desired outcomes. More than half of the respondents in the survey indicated that most of their intended outcomes were achieved. Nearly one-quarter believed that their project achieved the "best outcomes". A high proportion of respondents teaching multidisciplinary studios indicated that their projects achieved either "best outcomes" or "most of the outcomes" intended.

4. Studio is a Physical Space or Constructed Environment

One of the key factors contributing to successful and effective studios identified by respondents (in STP surveys and by forum participants) was the provision and accessibility of appropriate facilities and resources. This highlights the importance of *studio as a physical space or constructed environment*.

As suggested in Part One of this report, it is important to note that new forms of learning environments and teaching methodologies are beginning to challenge pre-conceived notions of the form and use of traditional dedicated studio spaces (Abel 1997/98; Al-Qawasmi 2005). Digital technologies have emerged as an aspect of the studio experience, and there is little question that the widespread adoption of various information communication technologies has already altered the educational environment for students – and for staff – much the way Gladwell (2000) and Kaplan (2009) have described to "tipping points" in various aspects of society. The STP surveys indicated that there is a growing need for an array of facilities and tasks that do not necessarily take place within the traditional studio space.

Appropriate facilities and resources

Institutional occupational health and safety (OH&S) and security policies notwithstanding, access to good working space, facilities and other material resources was recognised as among the factors contributing to an ideal studio experience (see Tables V2.28 and V2.49), and the academics' best experiences in studio as a teacher (Tables V2.52 and V2.53). Although only 11% of the Academic Survey respondents specifically mentioned *dedicated* spaces as needed to achieve the best studio outcomes in the future, it was also clear from responses to other items in the questionnaire the importance that having such spaces can play in developing a supportive culture:

> *Dedicated space that is flexible enough and well enough resourced to enable a range of activities to be undertaken as needed – physical modelling, computing, drawing, small and large group interactions, as well as individual work – and that promotes the development of a healthy supportive studio culture in which students feel free to explore ideas.*
>
> *My 'ideal' would include the allocation of enough time in the studio so various ways of working can develop in a group atmosphere, where informal peer responses can be encouraged, where works-in-progress can remain (rather than packed away or taken home) so peers can appreciate both what others are doing and how they are doing it.*
>
> STP Academic Survey responses

While access to good working space, facilities and other material resources was considered important, the STP Academic Survey showed that the quality of studio space (both individual and group spaces) was often rated as poor (see Tables V2.31, V2.32 and V2.33). Results showed that individual students were more likely (50%) to have dedicated space if they were in an Art studio, and least likely if they were part of an Architecture (15%) or Multidisciplinary (14%) studio. In the Architecture disciplines, nearly half of individual studio spaces were rated as poor, roughly twice the proportion in Art and Design studios. Group work spaces tended to be rated as adequate in Art, Architecture and Design disciplines.

Particular facilities and resources identified by heads of school in relation to the qualities of a successful studio included flexible premises appropriate to disciplines and projects (and level of study); access to appropriately equipped workshops; and ICT hardware and software appropriate to discipline and industry standards. Heads of school highlighted the importance of access to facilities outside, as well as within, formal timetabled classes. Despite recognition of the importance of appropriate facilities and resources, less than 20% of respondents to the STP Head of School Survey agreed or strongly agreed that studio teaching was adequately resourced. In addition, when these respondents were asked if they struggled to maintain and upgrade (non computer-related) equipment and facilities to a satisfactory level, nearly 65% agreed or strongly agreed.

While respondents in the Academic Survey highlighted space and facilities as important, several also stressed that these were not essential for learning to occur:

> *Obviously access to facilities (workshops, computers etc.) is critical in the production of discipline outcomes, but not essential, and often do not result in any significant learning.*
>
> *… it is never about the physical facilities it is more about how the students are able to engage and be active in their own learning.*
>
> STP Academic Survey responses

Discussions about the studio environment at the Studio Teaching Forum in 2007 encompassed both the physical and temporal aspects of studio (Forsyth, Zehner & McDermott 2007). On that occasion academics reinforced the view that the physical environment needs to be conducive to effective communication, and that studio space needs to be flexible. Many highlighted the importance of adequate workshop and storage space, and other workshop-specific needs such as soundproofing, appropriate lighting, and spaces suitable for 'messy work' such as model-making. Participants also highlighted that the integration of technology into studio practice should be facilitated in a flexible manner. Finally, participants discussed the importance of a space that allows for experimentation and reflection.

These themes resonate with STP Head of School and Academic Survey responses about the key characteristics of studio that included the provision of dedicated and appropriate space, and access to good facilities and other resources.

Case Studies of Effective Practice in Studio

As mentioned in the introduction to this chapter, data gathered from STP surveys and forums have been used to identify examples of effective practice in studio teaching. For example, heads of school were asked to identify recent trends and innovations in studio practice in their schools/departments. Part Three looked at these responses in detail and addressed the ways in which these innovations have worked to enhance studio experience, often under challenging circumstances. In the STP Academic Survey, respondents were asked to rate the success of their studio projects and to provide reasons why they were successful. Academics who attended forums were also asked to describe specific examples of studios that they believed were highly effective in terms of student learning outcomes and experience.

Based on this information, academics were invited to develop case studies drawn from their studio practice to be disseminated through the Studio Teaching Toolkit: www.studioteaching.org. Further information about the

case studies is provided in the introduction to Volume Four. Some of these case studies describe innovative studio practice, and others report on effective (but not necessarily new) practice.

The case studies developed as part of the Studio Teaching Project also provide valuable information about the student experience of studio teaching (for example, through summaries of student feedback on studio courses and projects). This information, also included in the Studio Teaching Toolkit (www.studioteaching.org) has been used to draw out key themes in relation to aspects of studio teaching that students' believe contribute to effective learning experiences.

Importantly, the case studies developed through the Studio Teaching Project provide examples directly related to the benchmark statements for effective studio practice presented below.

Key Findings

In order to enhance their applicability, key findings for this chapter are presented as 10 benchmarks for effective studio practice rather than listed separately as in previous chapters.

The following benchmarks for studio teaching in Art, Architecture and Design disciplines have been developed from responses by academics and heads of school to questions about the reasons for the success of studios, best studio outcomes, and the components of an ideal studio experience. They also draw on discussions at national forums on studio teaching, specifically, those addressing effective practice in studio. Examples of studio practice that embody many of these benchmarks are available on the Studio Teaching Website: www.studioteaching.org.

The benchmarks listed in Table V1.1 are grouped according to the framework that describes studio as a: culture, creative community (culture); mode of teaching and learning (mode); program of projects and activities (program); and physical space or constructed environment (space). The benchmarks are highly interdependent and not intended to be read in ranked order.

Table V1.1 Ten benchmark statements for effective studio practice

CULTURE	**1. Positive studio culture** Creating a positive studio environment, culture, and atmosphere is central to successful studios and the generation of effective and positive outcomes and experiences for students. This includes the development of a collaborative community within which ideas are developed, tested, applied, discussed and refined.
	2. Quality staff Staff quality (academic and technical) is integral to the success of studios. Elements of staff quality include: an appropriate balance of professional experience and teaching experience; an ability to integrate professional practice and studio teaching; the ability of staff to cooperate effectively in the teaching process with colleagues; and an ability to successfully facilitate student learning through studio projects (and intervene where necessary).
	3. Reasonable class and group sizes Studio groups of 12 to 20 depending on the nature of the activity, allow for greater interaction amongst staff and students, and between students, and help to create a positive studio environment that is conducive to experimentation and risk-taking.
	4. Student engagement and commitment Students' capabilities, effort and commitment are key factors in the success of a studio. Student engagement relies heavily on the quality of projects and staff in terms of enhancing students' passion, rigour, initiative, motivation and intuition; engagement, tenacity and commitment; resourcefulness, self-reliance and independence; problem solving, lateral thinking and flexibility; communication, team work and self-reflection; and ethical conduct and respect.
MODE	**5. High level of interaction** An effective and high level of interaction between staff and students, and between students, is necessary to achieve effective learning outcomes and experiences in studio. Interaction may take the form of one-to-one, group critiques and workshop, seminars and tutorials and time with academic and technical staff as well as access to studio facilities outside normal class times.
	6. Effective collaboration amongst students Collaborative activities such as group work on projects, peer critiques, discussion and skill sharing are essential to effective outcomes in studio.

PROGRAM	**7. Quality projects** The development and implementation of quality projects is key to successful studios. Quality projects include those aimed at conceptual, technical and communication skills development, and are those that integrate the multidisciplinary nature of professional practice within a broader context of contemporary social and global issues.
	8. Connection with industry and the profession Connection with the external clients and industry experts significantly enhances studio practice and student learning and engagement. This connection is strengthened by the ability of academics to successfully integrate their professional practice experience studio teaching and to set curricula and projects with prominent work integrated elements.
	9. Variety of outcomes Good curricular material will lead to the best outcomes in studio when theory and practice are integrated, and when an appropriate balance of product, process and person dimensions is incorporated. This balance necessitates multi-learning modes for studio processes, and outcomes of studio projects that are exploratory, 'open-ended' and dependent upon the maintenance of a range of activities.
SPACE	**10. Provision of appropriate studio space and facilities** Quality studio spaces and facilities clearly contribute to effective outcomes in studio. The availability of dedicated spaces for individual and group work is especially valuable. Good studio practice relies on access to good working space, facilities and other resources (including flexible premises appropriate to disciplines, projects and level of study; access to appropriately equipped workshops; and ICT hardware and software appropriate to discipline and industry standards).

Summary

This chapter set out to identify the most effective approaches to studio in the disciplines areas of Art, Architecture and Design. Evidence from STP Academic and Head of School surveys, along with data gathered from national studio teaching forums, was used to collate information about what constitutes effective practice in studio.

These data were used to create 10 benchmark statements of effective practice in studio that can be used by studio teachers to reflect on their teaching and by those involved in curriculum design, development and review.

These statements should be interpreted as interdependent factors contributing to effective practice and quality student learning experiences in studio.

Taken in their entirety these statements affirm that the best outcomes in studio include product, process and person dimensions. The following chapter looks specifically at these elements through a detailed exploration of indicators to assess good learning outcomes in studio.

PART FIVE
Indicators for assessment in studio

As indicated in the previous chapter, studio teachers recognise the key role that quality projects and related assessment plays in students' overall learning experience. Part Five presents a set of key indicators by which effective student outcomes in studio can be assessed in the discipline areas of Art, Architecture and Design. While the terms 'indicators' and 'criteria' are seen as interchangeable, the term 'indicators' is used throughout. The key question answered in this chapter is:

- What key indicators can be identified to assess good learning outcomes in a studio experience?

In addressing this question, the chapter draws on the literature on assessment in studio, the online survey of academic staff working in studio teaching settings at Australian universities, the two national Studio Teaching Forums and the good practice case studies, where relevant.

The chapter begins with an overview of the need for developing indicators for the assessment of learning outcomes in studio. It then outlines the methodology used to develop a set of indicators for assessment in studio and lists the indicators. Following this, the chapter presents a model for holistic assessment in studio and five principles for applying the indicators. The chapter concludes with a summary of key findings derived from the research.

Assessment in Studio

The importance of assessment in determining student learning is now well established and well documented (see for example Gibbs & Simpson 2004/05; Harris & James 2006). Links are now clear between positive student learning outcomes and quality teaching (Chalmers 2007). Globally there is a growing interest in identifying 'direct measures' of student learning, from which studio teaching cannot be immune. According to Chalmers, "it is on the design, delivery and administration, provision of feedback, moderation, and review of assessment where universities should be directing their attention. It is here that governments and their agencies could have the greatest impact on student learning" (p. 89). In fact, assessment is identified as one of only four (along with Institutional climate and systems; Diversity and inclusivity; Engagement and learning community) empirically validated dimensions of teaching practice that are most likely to lead to an enhanced learning environment which benefits students (Chalmers 2007).

Furthermore, criterion-referenced, as opposed to norm-referenced, assessment systems are now well accepted in the educational literature as being the most appropriate for assessing student learning outcomes in higher

education contexts (Biggs & Tang 2007). Criterion-referenced assessment relies on determining how well students are able to meet assessment criteria rather than on comparing the performance of students. In criterion-referenced assessment, "[t]he point is … to identify *performances* that tell us what has been learned and how well … [thus] one student's result is quite independent of any other student's" (Biggs & Tang 2007, p. 177).

To the outside observer however, assessment and feedback practices in studio are often seen as unsystematised and subjective (Ledewitz 1985). On the other hand, there are many on the inside who still argue that because of the 'creative' nature of the final artefact (design events or objects) assessment of creative work is difficult, if not impossible (Ellmers 2006). Others question whether assessment criteria can be developed that capture the essence of the outcomes of Art, Architecture and Design work that truly reflect what the artefacts or events are all about (Sabol 2006).

In addition, the issue of whether assessment is about product, process and/or person remains under debate today (AIAS Studio Culture Taskforce 2003; Ehmann 2005; Ellmers 2006; Goldschmidt 2003). A view that the product or final outcome of learning is what matters most is commonly held across higher education generally and so is not confined to the creative disciplines (Calvert 2004/05; Rust 2002; Rust, Price & O'Donovan 2003).

One aspect of assessment that has been identified as critical in supporting positive learning outcomes is the "provision of *specific*, continuous and timely feedback on the quality of student learning" (Chalmers 2007, p.91). Students appreciate having clear criteria to work to. From the analysis of student feedback in the case studies developed for the Studio Teaching Project, having clear criteria and expectations was identified as one of the 12 most important factors contributing to a positive student experience in studio. In the words of an interior design student:

> *The lecturers told us exactly what was expected of us and … gave us information relevant to the assignments ....*

However, in terms of assessment criteria in the creative disciplines it is often reported that educators may not routinely explicitly outline learning and assessment criteria or "state or prescribe specific design goals or refer to knowledge categories" (Goldschmidt 2003, pp. 1-2). Therefore, there are many who argue that while there is a need to retain the many positive aspects of the studio assessment mode, there is also room for change in the area of assessment. There are calls for shifts to occur in studio assessment practice, including work to make assessment criteria clearer and more explicit (see for example Calvert 2004/05; Ehmann 2005; Forsyth, Zehner & McDermott 2007; Zehner et al. 2008; Goldschmidt 2003; Kellogg 2004; Koch, Schwennsen, Dutton & Smith 2002). For the creative disciplines, this means identifying clear assessment criteria, as well as assessing all aspects of design/art-making,

including the product, the process, and the person. As reported by Calvert (2004/05), it also involves assuring staff that the use of indicators or criteria "do not necessarily diminish the professional judgement of staff, they just require them to exercise it differently, in a way that is more transparent and meaningful for students" (p. 97).

Thus, a key issue still facing Art, Architecture and Design educators which cannot go unheeded is what criteria to use to assess creative work effectively. In response to this need this chapter presents a set of indicators that may be used to *assess good learning outcomes* in a studio.

Developing the Indicators

As mentioned, the method used to develop the indicators or criteria for assessing 'good' learning outcomes in a studio experience was based on a synthesis of four data sources, namely 118 journal article abstracts that focused on studio and literature on effective assessment, the STP Academic Survey, the three national forums on studio teaching and case studies of good practice in studio. A three stage qualitative approach was used to synthesise the data gathered.

Stage 1: The approach involved initial familiarisation with three of the sources through reading of the literature and data from the survey and forums.

Stage 2: Material was then re-read and possible indicators were developed from each source. A set of indicators from the literature were developed first, then from the survey and lastly from the forums. What each data source contributed to the set of indicators developed is outlined in Appendix Two.

Stage 3: The final stage involved the tabling and synthesising of the indicators identified from the previous stages. Common themes were merged and any new discrete themes were added. Finally, themes in the case studies that were illustrative of the indicators were linked to the indicators. The set of indicators developed in this way were common to the three discipline groups of Art, Architecture and Design.

From the analysis and synthesis of the data described above, a number of indicators or criteria emerged that have been classified under Product, Process and Person dimensions – indicators included, for example, underpinning content knowledge (product); reflective and professional practice skills (process); and growing ability to act and think like an architect, artist or designer, developing as a learner and changing as a person (person).

Given that the dimensions and associated indicators were well-represented and triangulated by the data sources, which included both theoretical as well as on the ground practice-based sources, all three dimensions (product, process and person) are proposed as being integral to good learning experiences and outcomes in studio and with different emphasis are deemed

applicable across the discipline areas. Using a multiplicity of dimensions such as these embodies an approach to assessment of learning in studio that is holistic, explicit, fair and balanced and in line with the literature on good assessment practices (Gibbs 2006; Gibbs & Simpson 2004/05; Nicol & Macfarlane-Dick 2004, 2006; Rust, Price & O'Donovan 2003).

Dimensions by Discipline

While all of the assessment dimensions (product, process and person) featured in all of the discipline areas, namely Art, Architecture and Design, it was found that certain dimensions were given different prominence depending on the discipline.

The dimension(s) emphasised for each discipline were (in order of emphasis):

- *Art* 1) process, 2) person, 3) product;
- *Architecture* 1) product, 2) process 3) person; and
- *Design* 1) process 2) product 3) person.

This may indicate that the focus of assessment may be deeply held in the zeitgeist of each discipline and of those who teach within it. For example, the product dimension appeared to be central to assessment in Architecture studios while the process dimension took centre stage in both Art and Design. In addition, Art was the only discipline in which the person featured prominently.

The Indicators

The set of indicators developed from the synthesis of the sources outlined above are presented in Table V1.2.

Table V1.2 Assessment dimensions, with core indicators and definitions

Dimension	Indicator/ Criterion	Definition
Product Focuses on the outcome of the art or design process, emphasis is primarily on the final product (artefact, event, object or process) and its quality Quality used as a proxy to illustrate level of challenge, acquisition of knowledge, and development of skills	Content knowledge	Appropriate underpinning body of knowledge of discipline evident in the final art/design product Acquisition of new knowledge evident in the art/design product Appropriate research evident in the art/design product
	Concept resolution	Idea/concept/design problem fully resolved or developed in the art/design product Idea/concept/design problem rationalised (evidence for thinking demonstrated) in the art/design product Level of challenge met appropriately in the art/design product Innovative, creative and original ideas evident in the art/design product Brief clearly and completely understood and fulfilled in the art/design product Industry, commercial or community standard (depending on level/stage) met in the art/design product
	Presentation	Desirable aesthetic qualities evident in the art/design product Accurate, attention to detail in response to brief (for example, scale and proportion, calculation and specification, drawing accuracy) evident in the art/design product
	Hard skills	Art/design thinking skills (integration, synthesis, exploration, rationalisation, projection, resolution) evident in the art/design product Effective application of design principles for example, *Elements*: line, shape, tone, colour, texture and *Combined*: proportion, figure/filed, unity/contrast, balance rhythm, spatial tension evident in the art/design product Effective use of technical skills (sketching, painting, drawing, lettering, typography techniques and design fundamentals) evident in the art/design product Appropriate contemporary information and communication technology use evident in the art/design product
	Soft skills	Effective use of non-technical skills (decision-making, critical thinking/analysis, evaluation, problem-solving, independent and innovative thinking etc) evident in the art/design product Experimentation, enquiry, questioning of assumptions evident in the art/design product Element of risk taking evident in the art/design product Consideration of audience evident in the art/design product
	Magic	Intangible/intuitive judgment that is difficult to describe but is easily recognised when it is present in the product – the wow factor or that special something in the design that just works, captures the imagination, is above expectations, is unexpected and surprising, acclaimed as a touchdown! Etc.

Dimension	Indicator/ Criterion	Definition
Process Focuses on the process involved in developing the product or outcome rather than emphasis on the final product or outcome	Interaction – disciplinary/ interdisciplinary/ industry/cross-cultural	Worked effectively with others from the same discipline in the process of developing the product Worked effectively with others in different disciplines/ subject domains in the process of developing the product Worked effectively with others from outside (for example, clients/industry practitioners, international peers) in the process of developing the product
	Engagement	Deep and ongoing personal commitment to concept development and resolution demonstrated in the process of developing the product Overcame problems and persisted in the face of difficulties in the process of developing the product
	Hard skills	Selected, developed and used specialised techniques and technical skills in the process of developing the product Application of design principles for example, *Elements*: line, shape, tone, colour, texture etc and *Combined*: proportion, figure/field, unity/contrast, balance rhythm, spatial tension etc demonstrated in the process of developing the product Technical skills (sketching, painting, drawing, lettering, typography techniques and design fundamentals) demonstrated in the process of developing the product Contemporary information and communication technology use demonstrated in the process of developing the product
	Soft skills	Non-technical skills (decision-making, critical thinking/analysis, evaluation, problem-solving, independent and innovative thinking etc) evident in the process of developing the product Justification of concept/idea/object demonstrated in the process of developing the product Experimentation, enquiry, questioning of assumptions evident in the process of developing the product Element of risk taking evident in the process of developing the product Effective presentation and communication skills (academic/industry/professional) demonstrated in the process of developing the product Consideration of audience evident in the process of developing the product
	Professional practice	Timely submission and organisation skills demonstrated in the process of developing the product Supporting documentation logical, clear, concise, correct, cohesive and compelling Appropriated ideas acknowledged and referenced evident in the art/design product Industry and professional capability (appropriate for level/stage) demonstrated in the process of developing the product New ways of working demonstrated in the process of developing the product Praxis extended in the process of developing the product
	Reflective practice	Reflective thinking (both breadth and depth) demonstrated in the process of developing the product

		Reflection in and on action demonstrated in the process of developing the product
	Magic	Intangible/intuitive feeling that is difficult to describe but is easily recognised when it is seen in the process for example, vibe in the room, new way of doing something that just works, is above expectations, is unexpected and surprising, just comes together, is acclaimed as a touchdown moment! Etc.

Dimension	Indicator/ Criterion	Definition
Person Focuses on student development and growth (enhancement) and the human, emotional aspects of learning	Self-awareness	Ability to respond to others enhanced Awareness of how one is perceived by others enhanced
	Self-management	Ability to manage oneself and to adapt enhanced Ability to learn/improve from own experience and others enhanced Ability to persist and overcome difficulties enhanced
	Engagement	Personal commitment to concept development and resolution enhanced
	Learning approach/style	Learning strategies and methods, ways of learning enhanced
	Hard skills	Selection, development and use of specialised techniques and technical skills enhanced Application of design principles for example, *Elements*: line, shape, tone, colour, texture and *Combined*: proportion, figure/filed, unity/contrast, balance rhythm, spatial tension enhanced Technical skills (sketching, painting, drawing, lettering, typography techniques and design fundamentals) enhanced Contemporary information and communication technology use enhanced
	Soft skills	Ability to make decisions, think/analyse critically, evaluate, solve problems, think independently and innovatively etc (non-technical skills) enhanced Ability to justify a concept/idea/object enhanced Ability to experiment, enquire and question assumptions enhanced Ability to take risks enhanced Ability to present and communicate effectively (for academic/industry/professional contexts) enhanced Ability to consider audience enhanced
	Reflective practice	Ability to engage in reflective thinking (both breadth and depth) enhanced Ability to reflect in and on action enhanced
	Magic	Intangible/intuitive feeling that is difficult to describe but is easily recognised when it is present for example, inspiration, empowerment, wonder, insight, growth, etc.

Note. For the indicator 'magic', there can be no one arbitrator; for this indicator the peer group could be the assessors.

Model for Holistic Assessment in Studio

The indicators have been drawn together in a conceptual model.

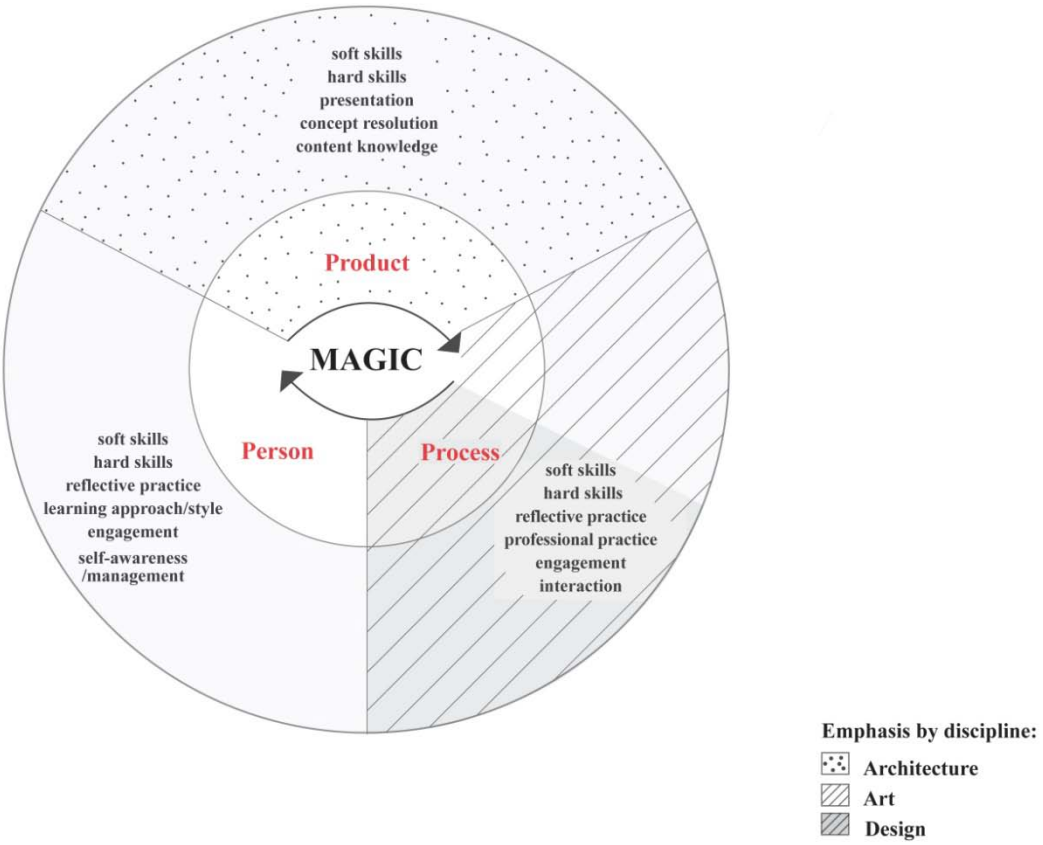

Figure V1.1 Conceptual model for holistic assessment including emphasis by discipline in Art, Architecture and Design studios

The paradigm underpinning the conceptual model is that at its core *all* aspects of the art making/design act including the process, the final product and the person, are equally valued. All three aspects should be balanced to ensure that graduates are well rounded, that is, they are able to produce good designs/artworks; have the required knowledge, skills and attitudes to manage the process of design/art-making; and develop as a person. It is important to reconcile these three aspects because otherwise the risk is that good art/designs may be produced at the expense of the person and process aspects. Equally, a graduate may develop as a person but be unable to produce good art/design outcomes; or they may be accomplished in the process aspects of art/design but not be able to realise an outcome or develop as a person.

Principles for Applying the Indicators

The following five principles set out how the indicators provided in Table V1.2 can be applied in practice.

1. The indicators are *flexible* in that every indicator does not need to be assessed every time an assessment is undertaken.

Assessment is considered sound as long as the total assessment experience for students in their program of study addresses, develops and assesses all core aspects over time.

2. The indicators can be used at both the individual subject and degree level as a *touchstone* to facilitate reflection on, and re-alignment of, assessment in studio.

At the level of the whole degree, the indicators can be mapped to ensure that the aspects identified as fundamental to creative practice are assessed at appropriate times in the student's learning experience over the period of the degree. If it is revealed that the subject or degree is privileging one or more aspects at the expense of others (for example, the product), the indicators can serve as a reminder for lecturers that it is important to support the development and assessment (through allocation of marks) of all aspects fundamental to learning. Using the indicators in this way will help to ensure that assessment, at both the individual subject and degree level, is not overly focused (in an ad hoc way) on one aspect and thus, sending a message to students that may not be quite what is intended.

3. The dimensions and associated indicators can be used to support *developmental* assessment as students progress through their degree program.

For example, it is appropriate to focus on different dimensions at different times. When developing creative practice lecturers can consider each of the dimensions (product, process or person) in relation to learners and their stage of learning, and then focus the design and level of assessment tasks and associated indicators accordingly. For example, in the early stages of a degree it may be considered important that more attention is paid to the development and assessment of the process dimension, with interaction, engagement, hard skills, soft skills, and reflective practice indicators used as foundational skills required for the development of the product dimension later on in the program. This is often the case in art making.

4. The indicators can be used at the individual subject or degree level to inform the *design* of studio assessment tasks and the development of assessment rubrics.

Using the indicators in this way will contribute to ensuring that assessment tasks and criteria are designed in line with what is seen as educationally sound and fundamental to creative practice. Providing students with rubrics contributes to demystifying the assessment process and gives students clear expectations and standards to work towards.

5. The indicators can be openly discussed with students and in this way facilitate the development of a *shared understanding* of what is being assessed and why.

Any mismatches between lecturer and student conceptions can then be addressed. There is now substantial evidence that this has a positive impact on, and supports, student learning.

Overall, it is believed that the sound application of the indicators (developed as a deliverable of this project) will contribute to making studio assessment productive, active and intellectually engaging, as well as personally rewarding for both students and academic staff. In the words of an Architecture student:

> *This was one of my favourite courses [subjects] that I have done since being at uni. The tutors were so helpful and the feedback that we received was very constructive. I think setting lots of small tasks and deadlines really helped produce a very complex and thorough end result ….*

A number of rubrics currently used by academics in Art, Architecture and Design are included in the assessment section of the Studio Teaching Toolkit (www.studioteaching.org) that has been developed to both inform emerging studio practices and reinvigorate established studio practices.

Key Findings

1. Assessment is generally acknowledged as a crucial element in the learning process, and the traditions of peer-to-peer learning, facilitated group critique, feedback and reflection are valued but unevenly utilised across the disciplines.

2. How to assess creative work effectively and what criteria to use are key issues facing educators in Art, Architecture and Design disciplines.

3. Studio assessment should focus on holistic assessment of product, process and person dimensions over the subject and/or degree.

4. There is a core set of indicators that align with what the literature, practitioners and students suggest may contribute to positive assessment in studio.

5. Certain dimensions and their associated indicators are central to the zeitgeist of each discipline and are, therefore, privileged by that discipline and may contribute to identity formation of practitioners and students in that discipline.

6. Standardised discipline-specific assessment indicators will assist teaching and learning outcomes in studio teaching within Art, Architecture and Design.

Based on these findings, application of the indicators in a thoughtful and thorough way can only contribute to advancing the overall student learning experience in studio.

Summary

Drawing on a number of key sources (the literature, STP Academic Survey, forums and case studies of good practice), this chapter has presented a set of indicators for the assessment of good learning outcomes in studio. In addition, it set out five principles that can be used to apply the indicators in practice. The key findings are summarised in a conceptual model that advocates holistic assessment in studio (Figure V1.1). While this figure suggests that a holistic approach to assessment (that incorporates product, process and person dimensions) is recommended, it also acknowledges that different discipline areas may weight/balance these dimensions differently.

The key recommendation emerging from this chapter is that studio teachers and curriculum designers use the assessment indicators as a means of contributing to advancing the overall student learning experience in studio.

The next chapter of the report presents the conclusions of the study and outlines the implications for future curriculum development and resourcing.

PART SIX
Conclusion

In the STP Head of School Survey, all respondents indicated that studio teaching was a key and indispensable characteristic of pedagogy in the discipline areas of Art, Architecture and Design.

The Studio Teaching Project investigated and described the circumstances and characteristics of studio teaching models in the discipline areas of Art, Architecture and Design, and identified effective studio practice in each of these disciplines.

The Project was directed at informing curriculum development, future practice, and professional development for studio teachers, and at contributing to better-informed policy decisions affecting studio.

The Project addressed the following fundamental questions in relation to the disciplines of Art, Architecture and Design:

- What is studio and how does it contribute to student learning?;
- What models of studio teaching are currently used in each discipline area in Australia? How and why have models changed over time? Which models are considered most effective in terms of a variety of student learning outcomes?;
- What key indicators can be identified to assess good learning outcomes in a studio experience?; and
- How can the variety of approaches to studio inform future curriculum development and resourcing across the sector?

In addressing these questions, the study drew on a number of key sources including a comprehensive literature review, an online survey of academic staff, a survey of heads of school, and two National Studio Teaching Forums. Further contributions are anticipated arising from the final National Studio Teaching Forum scheduled to take place in Hobart on 3-4 December 2009. This report represents a milestone in the on-going project of investigating studio that has, to date, been embraced by studio advisors and academics from a broad range of disciplines and institutions across Australia.

A foundation for discussion was established in Volume One addressing the fundamental question: What is studio and how does it contribute to student learning in the discipline areas of Art, Architecture and Design? There is a fundamental appreciation that studio learning embraces four learning constructs identified as: a culture, a creative community; a mode of learning and teaching; a program of projects and activities; and a physical space or constructed environment.

The successful integration and development of studio learning in Art, Architecture and Design in relation to each of these constructs is dependent upon: disciplinary relevance and emulation of industry/professional practice; learning through making and doing; class sizes and face-to-face learning; passionate and committed academics with industry experience; effective use of materials, technical skills; provision of extended periods of time in studio; appropriate physical space standards, including dedicated spaces resourced through adequate workshop, equipment and technical resources; integrated practice and theory; diverse, flexible and responsive course/subject content and teaching modes; stimulating, discipline/industry relevant projects; and reflective assessment and feedback processes.

Furthermore Part One confirmed that – in terms of the importance and relevance placed on studio learning – there is little significant difference between the three main discipline areas. All regard studio teaching as the single most important element of their pedagogies, "studio teaching is the defining feature of art schools and their greatest asset" (STP Head of School Survey).

The following key findings arose from investigating studio as an educational setting in the disciplines of Art, Architecture and Design:

1. Studio teaching is defined as learning through action – an investigative and creative process driven by research, exploration and experimentation; making and constructing; and critique and reflection. Studio teaching develops students' skills with materials, technology and processes of design, making and construction balanced with communication, conceptual and problem solving skills development.
2. In both academic and professional practice contexts the term 'studio' encompasses all the elements contributing to establishing a milieu for creative action. Art, Architecture and Design studio is understood as comprising four essential elements:
   - **A culture – people –** students and teachers – who build a creative community;
   - **A mode of teaching and learning** – characterised by processes of critical reflection, small class sizes, periods of face-to-face contact with teachers;
   - **A program of projects and activities** that reflect and integrate professional practice; and
   - **A physical space or constructed environment**, teaching and workshop space, tools and equipment and technical assistance appropriate to project needs.

3. In addition to specific Art, Architecture and Design discipline skills, studio aims to develop students' passion, rigour, initiative, motivation and intuition; engagement, tenacity and commitment; resourcefulness, self-reliance and independence; problem solving, lateral thinking and flexibility; communication, teamwork and self-reflection; and ethical conduct and respect.

Part Two described models of studio teaching currently in use in the areas of Art, Architecture and Design in Australia. The major variables for learning in a studio environment: **people, projects, facilities and resources,** and **time,** determine the characteristics of different studio teaching models. The following characteristics were identified as fundamental to preserving relevance and diversity for a range of studio models that sustain learning in the broad disciplines of Art, Architecture and Design: small group teaching of between 15 to 25 students is the current practice leading to best outcomes for student engagement and learning; processes and outcomes of studio projects and activities are exploratory and 'open-ended' and are dependent upon the maintenance of a range of activities; and projects and activities address skills development, concrete knowledge and tacit knowledge. Further, the provision of some form of dedicated space is seen to be crucial to studios as a place where students can see their designs, and those of their peers, emerge and develop over the course of a project – essential for quality learning experiences; and best outcomes for learning are dependent on non-linear, time intensive and reiterative practices engaging in studio use over time beyond the limitations of formal structure.

Key findings related to models of studio teaching in current use include the following:

4. Four principle characteristics of studio teaching as a mode of learning encompass combinations of: project-based work; learning through praxis; learning through workshop; and learning through first hand observation.

5. Human and physical resources and time for reflection and development are essential elements for all forms of studio teaching. Models of studio teaching can be grouped according to the type and focus of learning activity undertaken: project, praxis, workshop, travel, cross-disciplinary, and blended learning.

The study also examined how and why studio models have changed over time. Drawing on the literature and data gathered from forums, surveys and case studies of effective practice, the study identified four broad change areas in studio: relationships to industry/professional practice; academic research; curriculum development; and structures and resources. Trends and innovations in these areas were examined according to a number of key

characteristics of studio – people, facilities and resources, projects and time (reflecting the major variables for learning in a studio environment identified in Part One).

The following key findings arose:

6. Government funding for tertiary education, consequential university budget allocation policies and increasing discipline costs (especially relating to staffing, ICT and space/premises) have created a sense of threat to the future viability and sustainability of studio teaching. Art, Architecture and Design academics report perceptions that their institutions undervalue their disciplines and studio teaching as pedagogy.

7. Academic workloads are believed to have increased to an unsustainable level, in part because additional administrative and quality assurance requirements result in reduced time for teaching and learning, and thereby threaten the quality of studio teaching.

8. Contemporary government policies recognising academic research that arises from studio practice present challenges and opportunities for Art, Architecture and Design academics. Responses to these challenges must be balanced and integrated with the need for quality teaching and learning.

9. Studio content in some award programs has moved from the practical considerations of professional practice towards conceptual and theoretical development, leaving a sense of imbalance – practical and technical skills are under-taught and undervalued, especially in some of the traditional Craft areas.

10. The integration of studio projects within work and industry contexts, frequently with multidisciplinary emphases, is often cited by academics as integral to successful learning outcomes and the embedding of essential graduate skills.

11. Good commencing students in Art, Architecture and Design demonstrate a mix of manual, technical, conceptual and personal skills. Standard Tertiary Entrance Ranking systems are thought to preference academic achievement and not appropriately recognise more discipline-specific preparatory study and skills.

12. Developments in senior secondary school and vocational education and training (VET) curricula and the introduction of postgraduate coursework and research study present an extended learning period that has not been fully evaluated and utilised by Art, Architecture and Design educators. Coursework and research higher degree and VET awards (which now include some bachelor degree programs in Art,

Craft and Design disciplines) developed over the past 20 years have exacerbated concerns about duplication and encourage clarification of the content and purpose of each stage of the learning experience (especially as complementary and developmental components of learning pathways).

13. There has been a loss of some traditional Craft sub-disciplines from the (major) offerings in Art degree programs, leading to a concern that further sub-disciplines are at risk of being lost in states at the higher education level.

A key component of the Studio Teaching Project was to draw on the STP Academic and Head of School Surveys, and the Studio Teaching Forums, to identify components, and examples, of effective studio practice. Information provided by academics and heads of school was drawn upon to define 10 benchmarks that together give rise to the circumstances for effective practice in studio.

14. Benchmarks for successful studio teaching will assist academics to maximise the quality of learning outcomes within their respective disciplines. The 10 benchmarks are: positive studio community; quality staff; reasonable class and group sizes; student engagement and commitment; high level of interaction; effective collaboration amongst students; quality projects; connection with industry and the profession; a variety of studio outcomes; and provision of appropriate studio space and facilities.

Assessment is acknowledged as a crucial element in the learning process and the traditions of peer-to-peer learning, facilitated group critique, feedback and reflection are valued across the disciplines. Part Five of this report identified a set of indicators that can be used to assess good learning outcomes in studio. Aligning these indicators with learning in relation to product, process and person led to the development of a model for holistic assessment and a set of principles for applying the indicators. Key findings from the research suggest that there is a core set of indicators that align with what the literature, practitioners and students suggest may contribute to positive assessment in studio. In addition, certain indicators are central to the zeitgeist of each discipline and are, therefore, privileged by that discipline and may contribute to identity formation of practitioners and students in that discipline.

15. Assessment is generally acknowledged as a crucial element in the learning process, and the traditions of peer-to-peer learning, facilitated group critique, feedback and reflection are valued but unevenly utilised across the disciplines.

16. How to assess creative work effectively and what criteria to use are key issues facing educators in Art, Architecture and Design disciplines.

17. Studio assessment should focus on holistic assessment of product, process and person dimensions over the subject and/or degree.

18. There is a core set of indicators that align with what the literature, practitioners and students suggest may contribute to positive assessment in studio.

19. Certain dimensions and their associated indicators are central to the zeitgeist of each discipline and are, therefore, privileged by that discipline and may contribute to identity formation of practitioners and students in that discipline.

20. Standardised discipline-specific assessment indicators will assist teaching and learning outcomes in studio teaching within Art, Architecture and Design.

Within the disciplines of Art, Architecture and Design, studio is understood as a potent way of learning. However this study reveals academics are concerned about the future of studio as the primary mode of learning in the broad disciplines of Art, Architecture and Design. When asked "*Looking ahead in the next five years at your University, what needs to be done to maintain, enhance or achieve the best studio experience outcomes for students?"* respondents to the STP Academic Survey revealed widespread concerns regarding sufficient resources and funding, and regarding the availability and quality of staff. Further, responses to the STP Head of School Survey revealed that more than 80% of senior academics responsible for management of programs in Art, Architecture and Design consider that studio teaching is inadequately resourced.

Much of the disquiet about the future of studio arises from senior academics' perception that university administrations are not responsive to approaches regarding needs of studio teaching; rather that studio is perceived as a problem of time and space and that faculties must 'change' to conform to evolving funding and resource constraints.

The study also reveals that despite concerns that studio is 'under threat' from reductions in resourcing and increased student numbers, academics are generally enthusiastic and optimistic about studio teaching itself. They

continue to experience studio teaching as challenging, stimulating and ultimately rewarding. Evidence from forums and surveys indicates that studio teachers are proactive in inventing projects and reorganizing the variables of studio teaching to enhance student learning experiences. The STP Case Studies of Effective Practice that emerged from the study demonstrate that the need to balance reduced resources, on one hand, with demands arising from shifts within each discipline and the broader educational setting on the other, is currently being met with flexibility and creativity. On face value it would appear that studio teachers are coping.

In fact, over the progress of the Project several conundrums have emerged that reflect differing perceptions of the state of Art, Architecture and Design education. On the one hand, while there is widespread concern about the extent to which resources and funding have been reduced in recent years, there is also a conviction that the standard of graduates has been maintained or increased. Similarly, while many respondents in both the Academic and the Head of School Surveys see dedicated space as an essential need for studio teaching, a number of the most successful studio examples cited in the STP Case Studies of Effective Practice occurred without dedicated space.

However, while case studies confirm aspects of change are being 'managed' across the sector, these instances indicate responses to external constraints imposed on studio teaching, rather than changes developed from a careful set of pedagogical principles. Such constraints on studio teaching practice raise concerns that creative optimism is masking a silent erosion of studio teaching and its capacity to embed core disciplinary values.

While this study has confirmed that studio is integral to the education of artists, architects and designers, the future of a vibrant culture in Art, Architecture and Design rests on sustainable forms of studio teaching that address 10 benchmark statements for effective practice that have been identified by this study in Part Four. These benchmarks for effective practice can be achieved through resourcefulness, creativity and flexibility. They do rely on studio being recognised and valued as a mode of learning by institutions, and can be used in designing, arguing for, and testing new studio models and pilot project types leading to enhanced learning outcomes.

The Studio Teaching Project provides a platform for investigating the use of studio in disciplines in which it an emerging practice by providing a description of studio practice in those disciplines with which it has been traditionally associated. In discipline areas such as science and engineering where studio is an emerging practice, the implementation of the 10 benchmark standards needs to be tested for fit against each discipline's specific needs and learning objectives, quite possibly leading to different hierarchies among the variables of people, projects, facilities and resources, and time. The development of studio/project-based learning in 'new' disciplines, together with increased and strategic resources, will provide *new* insights that will feed back and potentially enhance studio as a potent way of learning across the sector.

The Studio Teaching Project's findings have been disseminated through three National Forums on Studio Teaching held in 2007, 2008 and 2009, publications and conference presentations both locally and internationally (listed in Appendix One), and the Studio Teaching Project website which houses the Studio Teaching Toolkit (www.studioteaching.org) containing a set of good practice indicators, examples of assessment/feedback approaches, learning environment evaluation criteria (for the teacher, the program team and the industry/profession to reflect, improve), and case studies demonstrating effective practice in studio teaching.

The third and final Studio Teaching Forum associated with the Studio Teaching Project was held at The Tasmanian School of Art, University of Tasmania on 3-4 December and functioned as the key event for the dissemination of Project findings. Feedback from the sector on the recommendations and "products" of this study was sought at this time.

From 2010, the Studio Teaching Project website will be hosted and supported by the University of Tasmania's Pathways Project to ensure the ongoing dissemination of the material to those involved in studio teaching and learning in Australia and internationally. Monitoring of activity/traffic on the Studio Teaching Website will provide a further opportunity to evaluate the level of use of the resources developed through the Project.

APPENDIX ONE
The Study's Methodology

Phases of the Study

In 2006, separate applications to investigate aspects of studio teaching were submitted from The University of New South Wales (UNSW) and from The University of Queensland (UQ) to the Australian Learning and Teaching Council (ALTC) for funding under their Discipline Based Initiative scheme.

In 2007, the UNSW and UQ teams were brought together, and then further strengthened with participation from RMIT University (RMIT) and the University of Tasmania (UTas) to make up the project team that was ultimately successful in its application for funding.

Separate funding to UNSW provided support for the first National Forum on Studio Teaching held in July 2007 at the College of Fine Arts (UNSW), an event that also provided an ideal opportunity to launch the broader Studio Teaching Project.

The study has involved a series of interconnected phases:

1. A comprehensive review of the research literature on studio teaching (October 2007);
2. The Second National Forum on Studio Teaching at the Faculty of the Built Environment, UNSW (August 2008);
3. Research on the use of studio teaching within Art, Architecture and Design (Parts One and Two);
4. An empirical phase through 2008 and 2009 in which 352 academics completed an online survey on studio teaching, and 28 heads of school completed a detailed survey about studio teaching (Parts Three and Four, and throughout);
5. Research on the use of studio teaching within Art, Architecture and Design (Parts One and Two);
6. Research on key indicators to assess good learning outcomes in studio that draws on the literature, forum data and good practice case studies (Part Five); and
7. The development of an online toolkit for academics teaching studio including case studies of effective practice; and
8. The third and final Studio Teaching Forum, held at the Tasmanian School of Art, University of Tasmania in December 2009, an occasion providing an opportunity to present and discuss the Project's findings and to announce the launch of the online toolkit.

Project Objectives

The four main objectives of the Studio Teaching Project were to produce:

- a comprehensive survey of current Australian studio practices
- the development of a range of student learning outcome criteria by which effective studio practice can be identified;
- An in-depth study of instances of studio practice which have effective student outcomes; and
- a toolkit of ideas linked to particular studio practices and their learning objectives that can be used to inform emerging studio practices and reinvigorate established studio practices.

The project set out to provide key data on the nature, extent and structure of studio teaching across the higher education sector in Australia, along with a structured understanding of the challenges facing this teaching, as articulated by key players and stakeholders. The project has investigated factors such as resource constraints, optimum space, teacher contact, teacher training and Information Technology (IT) facilities.

The project investigated models of good practices in teaching, feedback and assessment in the studio and provided benchmark statements for studio teaching. The project has also allowed opportunities for a number of disciplines with limited cross-disciplinary linkages to work together and address common concerns. Furthermore, the project has highlighted areas for future research and collaboration.

Disciplinary Story

As stated in the introductory section of the report, while the project team acknowledges the place of studio in a range of different disciplines, this study focuses around the discipline areas of Art, Architecture and Design. Decisions on which disciplines were “in” and which were “not in” reflects in part the disciplinary expertise of the project team (spanning Architecture, Design, Media Arts, Fine Arts, Communication and Creative Media), but in the end were resolved by consensus. Some decisions were straightforward for this team; they might have been problematic to other teams. For example, although the studio experience is clearly central for the training and education of performing musicians (see Sand 2000), the discipline of music was deemed to be outside the bounds of this ALTC project. Similarly, for instance, the team excluded theatre arts, creative writing studios, and disciplines of engineering where studio-like project-based learning has emerged as an aspect of the education of design-oriented engineers.

Even with those exclusions, the project cast its net widely, and when the time came to develop the online academic questionnaire there were eleven disciplinary areas in the list:

Architecture;
Art (Fine Arts: Painting, sculpture, printmaking, drawing, photography);
Art (Crafts: Ceramics, Jewellery, Textiles, Glass, Furniture);
Digital Media;
Industrial Design;
Interior Architecture;
Interior Design;
Landscape Architecture;
Media Studies;
Urban Design/Urban Planning; and
Visual Communications/Graphic design.

In the analysis of many of the questions from the Academic Survey the responses are grouped into the three broader disciplinary categories of Art, Architecture and Design. In these instances, the groupings are as follows:

Art	*Includes Fine Arts, Crafts, Digital Media and Media Studies*
Architecture	*Includes Architecture, Interior Architecture, Interior Design, Landscape Architecture and Urban Design/Urban Planning*
Design	*Includes Industrial Design and Visual Communication/ Graphic Design*

Literature Review

A literature review was undertaken regarding the role and function of the studio environment and studio teaching in the disciplines of Art, Architecture and Design. In particular the literature review focused on the role of hands-on, immersive teaching in particular disciplines.

Method

On the basis of the project aims and scope several keywords and descriptors were identified and used for searching publications. All databases (listed below) were examined one by one against all keywords:

(1) Design and Applied Art Index (DAAI);
(2) Science Direct;
(3) ABI/Inform Trade and Industry;
(4) ABI/Inform Global;
(5) Art Full Text/OmniFile Full Text Me;
(6) Avery Index to Architectural Periodicals;
(7) Architectural Publications Index;

(8) Art Index;
(9) Australian Architecture Database (ARCH);
(10) Grove Art Online;
(11) Eric;
(12) A + Education;
(13) Education Complete Full Text;
(14) ProQuest Education Journals;
(15) Web of Science;
(16) Science Citation Index Expanded;
(17) Social Sciences Citation Index;
(18) Arts & Humanities Citation Index;
(19) APAIS Full Text;
(20) Academic research Library;
(21) Expanded Academic ASAP;
(22) ProQuest Dissertations and Theses; and
(23) Australian Digital Theses.

In addition to databases mentioned above, several e-Journals were also searched:

(1) Art, Design & Communication in Higher Education;
(2) Art Education;
(3) Journal of Architectural Education;
(4) Design Issues;
(5) Art Education;
(6) Art Journal;
(7) A Journal of Performance and Art (PAJ); and
(8) Studies in Art Education.

Three library catalogues (UNSW, QUT, and British Library) were also searched to identify "books" related to studio teaching. "Google Scholar" ® was also consulted for finding articles. A request for information was also sent to two Internet discussion groups (PhD-Design, 1300 members; and IDForum, 450 members). STP team members suggested additional references and/or sources of information.

In total, 508 references including journal articles, theses, books, edited books, reports, conference papers, and websites were identified. The annotated literature review can be found in full on the studio teaching website in the "Publications" section: www.studioteaching.org.

This initial list has since been updated to include a series of papers relevant to studio teaching that were presented at the ConnectED International Conference on Design Education held at The University of New South Wales in 2007.

A paper titled "Assessment focus in studio: What is prominent in art, architecture and design" on assessment in studio teaching has been produced based on the literature review (listed below).

Conference Papers and Journal Articles Arising from the Project

The following conference papers and journal articles have arisen from the Studio Teaching Project:

De la Harpe, B, Peterson, F, Frankham, N, Zehner, R, Neale, D, Musgrave, E & McDermott, R 2009, 'Assessment focus in studio: What is most prominent in Architecture, Art and Design?', *International Journal of Art and Design Education*, vol. 28, no. 1, pp. 37-51.

De la Harpe, B & Peterson, F 2008, 'A model for holistic studio assessment in the creative disciplines', *Refereed proceedings of the ATN Assessment Conference*, Adelaide, Australia.

Zehner, R 2008, 'Studio teaching in Australia, from art and architecture to urban design and planning', paper presented at ACSP–AESOP Joint Congress, Chicago, Illinois.

The Empirical Phase

1. STP Academic Survey (see also Volume Two)

One of the primary ways in which the Studio Teaching Project attempted to capture the variety of studio spaces and experiences was to conduct an online survey of Australian academics involved in studio teaching in Art, Architecture or Design, or closely allied disciplines. A total of 1005 academics were invited to take part in the survey, which was accessible from 9 April 2008, and a final email reminder was sent out on 11 June 2008.

Survey design

The first section of the survey collected information about respondents' discipline and asked them to indicate which years of the degree curriculum they had participated in studio teaching.

The remainder of the survey grouped questions into the following sections:

- The practice of studio teaching
- Feedback and assessment
- The studio experience
- About you and your teaching experience

The practice of studio teaching

This section of the survey asked participants to:

> … describe the studio subject in which [they] were most involved during 2007 (or the most recent year [they] were involved) together with the main studio project that was the focus of the subject.

It asked participants to provide details about:

- the nature of the studio subject;
- the number of students enrolled ;
- the number and name of the discipline areas that the students enrolled in the studio subject came from;
- how much the subject was worth in terms of students' full-time load during the semester;
- the topic/focus/brief for the primary studio project in the subject;
- whether or not students were expected to work individually and/or part of a group;
- how many hours per week they expected students to work on the project in various settings (for example, in lectures, in studio space, off campus) and overall;
- the importance of electronic communication; and
- whether or not students were allocated dedicated space for the duration of the project.

Participants were asked to rate the spaces available for the studio project and explain their rating. Further, they were asked to provide details about the type of facilities and activities used in the project, staff allocated to the subject, the duration of the project and the time students and staff devoted to the subject.

Feedback and assessment

This section of the survey asked respondents about the ways in which formative and summative feedback was provided for the studio subject in which they were most involved. They were also asked to indicate what proportion of students' marks depended on various components of the semester's work (that is, work carried out during the semester, project work submitted at the conclusion of the project, and the presentation of submitted/completed work), and the extent to which peer-to-peer feedback occurred. The final questions in this section were designed to collect information about the role of external examiners/experts/professionals in the subject, and to rate and explain the success of the studio project from their own perspective and the perspectives of students, the school/program/faculty and the community/client where applicable.

The studio experience

The five items in this section of the survey asked respondents to consider studio teaching more generally (that is, not just in relation to their most recent studio experiences). They were asked to describe what they view as the essential components of an ideal studio experience that are most likely to lead to the best outcomes for students, how they would define those best outcomes, and to what extent the studio project they referred to in previous questions achieved those outcomes. In addition, participants were asked to describe elements of the best studio experience they have had as a teacher and indicate what they think needs to be done in the future to maintain, enhance or achieve the best studio outcomes for students.

About you and your teaching experience
This final section of the survey was designed to gather information about the respondents' university teaching experience, how many years of professional experience they had, and how relevant their professional practice is to their involvement in studio teaching.

The survey sample

A list of academics identified as teaching in Australian degree-granting Art-Architecture-Design programs was compiled as a basis for the online survey. For some institutions it was a simple matter to compile a list of appropriate email addresses. In other cases it proved difficult to locate academic staff names, let alone their email addresses, and while every effort was made to create an exhaustive list of studio teaching academics, the team undoubtedly missed some individuals, and included some individuals who are not, in fact, involved in studio teaching, and – though we aimed to focus only on full-time staff – approximately 19% of the respondents have indicated that they were not teaching on a full-time basis at the time the filled in the survey.

In addition to trolling through institutional websites (see below), names with email addresses were also sourced from sign-up sheets filled in by participants at the 2007 National Forum, and from project team contacts and colleagues. The resulting collation was reviewed in detail by the project team to weed out duplications and individuals who were known not to be involved in studio teaching. The initial emailing of the questionnaire enabled the team to identify another group of individuals who made clear that they were not appropriate respondents for a survey focusing on studio teaching, as well as to identify a limited number of non-functioning addresses. At the end of this process, 1005 individuals remained on the email survey sample list. The sample was sent a reminder email approximately every three weeks during the period that the online survey was 'live' (from April-June 2008). A total of 352 academics eventually responded to the survey, a response rate of 35%.

Art, Architecture and Design programs in the following 42 degree-granting institutions were searched for individuals believed to be involved in studio teaching to generate the sample for the online survey:

Adelaide Central School of Art
Adelaide Centre for the Arts
Australian Catholic University
Australian National University
Ballarat University
Billy Blue College of Design
Bond University
Canberra Institute of Technology
Central Queensland University
Charles Darwin University
Charles Sturt University
Curtin University of Technology
Deakin University
Edith Cowan University
Griffith University
James Cook University
JMC Academy
La Trobe University
Macquarie University
Monash University
Murdoch University
National Art School
Queensland University of Technology
Raffles College/KvB
RMIT University
Southern Cross University
Swinburne University of Technology
The University of Adelaide
The University of Melbourne
The University of New South Wales
The University of Newcastle
The University of Queensland
The University of Sydney
The University of Western Australia
University of Canberra
University of New England
University of South Australia
University of Tasmania
University of Technology, Sydney
University of Western Sydney
University of Wollongong
Victoria University

Attendees from the first National Forum on Studio Teaching that was held at UNSW in July 2007 were also invited to take part in the survey.

The Project made use of *SurveyMonkey* software as a platform for the questionnaire (see Volume Two for further information).

Quantitative and qualitative analyses

The *SurveyMonkey* software for online questionnaires generates a comprehensive record of both close-ended and open-ended responses. Quantitative analyses of the data set were undertaken using SPSS (Versions 15.0 onward) after the data were migrated from *SurveyMonkey* to SPSS. Open-ended responses to key questions about, for example, the components of ideal studios and reasons for especially good studio teaching experiences, were analysed using NVivo software.

2. STP Head of School Survey (see also Volume Three)

Introduction

A survey of heads of school was conducted as a follow-up to the STP Academic Survey reported above to allow a better understanding of current Australian studio practices at the school, department and university level. The survey was designed to gather perceptions about the qualities necessary for successful studio teaching, examples of recent innovations, aspects of the current situation, and future potentials in studio teaching across various institutions. The survey also collected information about contact hours, studio majors, on-line delivery, studio space provision and work-integrated learning to assess trends across the various disciplines and institutions. The results of the survey are reported throughout the various chapters of this report.

Aims

In the context of the overall Studio Teaching Project, the aim of the survey was to gain an additional perspective on studio teaching that could be cross-referenced with the findings of the STP Academic Survey, the outcomes of two national forums on studio teaching, and the literature. The survey allows an examination of differences and common trends in studio teaching across a large number of schools, universities and disciplines across Australia.

An important additional aim of the survey was to provide examples of effective practice in studio teaching that could be followed up and developed into case studies for dissemination via the online Studio Teaching Toolkit (see Volume Four).

Methodology

The section below outlines the methodology used in the study, including survey design, participating Universities, response rate and the disciplines represented in the study.

Survey design

The STP Head of School Survey is a cross-sectional survey combining rating scale and open-ended questions (see Volume Three). The first section asked participants to provide details about their school, information about undergraduate courses, degrees and awards, and information about postgraduate coursework and research higher degree courses. In order to gain further insights into the current structure and components of studio courses, the survey also asked respondents to indicate if their school offered studio majors, specialisations or streams within their undergraduate awards, and to describe any recent changes to studio majors.

Following this, the survey asked participants to provide detailed comments on what they consider to be the role of studio teaching in their discipline (that is, how it contributes), what they regard as the most crucial qualities of successful studio teaching, and to outline any examples of recent innovations within studio in their programs. The results of this question were used as a basis for the development of a series of good practice case studies in studio teaching and included in the online Studio Teaching Toolkit for dissemination.

The quantitative questions in the survey included 17 items (a mixture of positively and negatively phrased questions) designed to assess attitudes to the current situation in studio teaching and future potentials across institutions. Responses were made on a 5-point rating scale: (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly Agree. Specifically, questions sought to gather information about: the extent to which heads of school believe studio teaching is a key characteristic of pedagogy; the extent to which schools are exploring alternative ways of delivering studio; attitudes related to budget limitations, viability and resourcing; the extent to which studio teaching is supported by university management; the relationship between theory and practice; the quality of graduates and student enrolments; and support for postgraduate coursework students.

Information about contact hours was also gathered including number of lecture hours per semester, number of tutorial and critique discussion sessions, number of practical studio hours with academic and technical supervision, and number of hours of expected of students outside normal teaching time.

The final part of the survey collected information about alternative structures for studio majors; details about the use of online delivery; a range of questions on studio space provision; information on work-integrated learning; details of income per EFTSU. The final question asked heads of school to make any additional observations or comments on the current state of Australian Art, Architecture and Design schools.

A “Participant information sheet and consent form” was attached to each survey and signed copies returned to the project manager.

Response rate

The project team went through a 'best efforts' process to identify the heads of school in Art, Architecture and Design disciplines in Australia (respondents could be the Head or Coordinator of a school/department/program with a studio component). Due to variations in the structure of schools, departments and divisions it was often difficult to determine the best person to contribute. A list was complied through this process and a survey was emailed to each head of school in November 2008. It was acknowledged that through the process some heads of school would be missed, so the email included a request to forward to the relevant contact if it didn't reach the right person. In addition, the project team used formal and informal networks to ensure that the surveys reached the appropriate people. Several weeks after the surveys were emailed to the list, a follow-up email was sent to encourage those who hadn't replied to complete and return their surveys.

Of the 83 surveys distributed to heads of school, 30 were completed. Of these, two were duplicate surveys. That is, on two occasions more than one survey was returned from the same school. In these cases, responses were combined so that no comments relevant to the school were lost. This brought the total number of surveys to 28. That is, a response rate of 34%.

Of the original 30 surveys returned, 15 were hand-written and returned in the post, 14 were typed and sent electronically, and one was the result of a phone interview conducted by the project manager.

Participating universities

A total of 19 Australian universities took part in the study, with representation from all states and territories with the exception of the Northern Territory. In several cases, universities returned questionnaires from two or more schools/disciplines. Table V1.3 shows the number of universities from each state/territory who participated in the survey, along with the number of surveys returned (not including duplicates received).

Table V1.3 Number of universities from each state/territory who participated in the STP Head of School Survey.

State/Territory	Universities	No. of surveys returned
Australian Capital Territory	The Australian National University University of Canberra	2
New South Wales	Charles Sturt University The University of New South Wales The University of Newcastle The University of Sydney University of Technology Sydney	8
Queensland	The University of Queensland University of Southern Queensland	3
South Australia	The University of Adelaide University of South Australia	3
Tasmania	University of Tasmania	2
Victoria	Deakin University Monash University RMIT University Swinburne University of Technology	7
Western Australia	Curtin University of Technology Edith Cowan University The University of Western Australia	3
	Total number of surveys returned	*28*

Table V1.4 shows the various schools, departments and faculties represented by each of the participating Universities and a summary of the number of surveys returned.

Table V1.4 Schools, departments and faculties represented by participating universities

University	School/Faculty/Department
Charles Sturt University	School of Visual and Performing Arts
Curtin University of Technology	Department of Architecture and Interior Architecture
Deakin University	School of Architecture and Building
Edith Cowan University	School of Communication and Arts
Monash University	Department of Architecture Department of Fine Arts
RMIT University	School of Media and Communication
Swinburne University of Technology	Faculty of Design
The Australian National University	School of Art
The University of Adelaide	School of Architecture, Landscape Architecture and Urban Design
The University of New South Wales	Faculty of the Built Environment College of Fine Arts
The University of Newcastle	Faculty of Architecture
The University of Queensland	School of Architecture School of Geography Planning and Environmental Management
The University of Sydney	Faculty of Architecture, Design and Planning

The University of Western Australia	Faculty of Architecture, Landscape and Visual Arts
University of Canberra	Faculty of Arts and Design
University of South Australia	School of Art, Architecture and Design
University of Southern Queensland	School of Creative Arts
University of Tasmania	Tasmanian School of Art School of Architecture and Design
University of Technology, Sydney	School of Design School of Architecture

Disciplines represented

In some cases, heads of school focused their responses on a particular program/degree within their school (for example a Bachelor of Interior Architecture within the School of Art, Architecture and Design). In other cases, heads of school provided answers for a range of sub-disciplines within their school (for example Architecture, Landscape Architecture and Visual Arts in the School of Architecture, Landscape and Visual Arts). This accounts for the variation in the totals in the two right hand columns in the Table V1.5.

Table V1.5 Breakdown of the disciplines represented in completed surveys

Broad discipline	Specific discipline areas	Number surveys linked to each sub-discipline	Total number of surveys linked to sub-disciplines within each discipline area	Total number of actual surveys
Architecture	Architecture	11	18	14
	Landscape Architecture	3		
	Interior Architecture	1		
	Planning	1		
	Interior Design	1		
	Urban Design	1		
Art	Art/Fine Arts	6	10	10
	Visual and Performing Arts	2		
	Creative Arts	1		
	Creative Media	1		
Design	Design	3	4	4
	Applied communications	1		

The column "Specific discipline areas" in the table above includes the terminology used by the universities who participated in the study, that is, the terminology associated with their various schools/departments. The grouping of the sub-disciplines into the broader discipline categories – Art, Architecture and Design – is consistent with the grouping used throughout the Studio Teaching Project (see Part One).

Analysis

A mixture of qualitative and quantitative methods was used to analyse the STP Head of School Survey data. Quantitative methods were used to

examine the nature and structure of degrees, the extent to which schools/departments offered work-integrated learning, majors, online subjects, and to analyse the series of rating scale questions that gathered perceptions on a range of aspects of studio teaching. Open-ended questions, which made up a significant portion of the survey, were analysed qualitatively by drawing out key themes and examining the number of times particular themes were included in the responses.

Caveats

The following caveats should be taking into consideration in the interpretation of the results and conclusions presented in this report.

- *STP Academic Survey.* The majority of the questions in the online survey asked participants to answer according to the studio subject in which they were most involved during 2007 (or the most recent year in which they were involved), together with the main studio project that was the focus of the subject. As a result, the studio subjects and projects described by respondents should not be seen as a "random sample" of all studios and studio teaching experiences. Having said that, however, the 301 studios that are included in the STP analyses do provide coverage of recent studio teaching in the three broad discipline areas that are the focus of this project.
- *STP Head of School Survey.* Responses to the STP Head of School Survey suggested that in some instances there was an issue in the way respondents interpreted the terminology used. For example, some participants did not consider lectures to be a distinct form of teaching (and therefore indicated total class hours rather than separate figures for lectures and tutorials). Similarly, some respondents did not distinguish between tutorial/critique sessions and studios/workshops (particularly in Architecture). A second issue relates to the fact that a number of participants found it difficult to calculate or access information pertaining to student enrolments or the number of hours students spend on particular activities. In addition, when asked to indicate how many hours students' spent on particular activities, many respondents provided a range rather than a single figure (as the number often varied according to year level). This meant that it was not possible to work out the average number of hours spent in lectures, tutorials and studios for each of the broad discipline categories, and overall. To minimise these issues, the data were cross-checked with other sources where possible.

- *Case studies.* The case studies that appear in the Studio Teaching Toolkit represent a broad cross-section of themes and disciplines. Decisions about which case studies to include were largely based on responses to the STP Head of School Survey (dealing with effective and innovative practice), suggestions from the National Studio Teaching Forums, and leads generated through responses to the online survey of Australian academics.

Compilation of the Final Project Report

The final report presents an interconnected picture of the research literature, perspectives from academics teaching studio, heads of school, forum participants, and case study contributors (and their students' feedback on studios). In addition to reporting on the main study it provides links to other key components of the Studio Teaching Project such as the forum proceedings, toolkit and case studies.

As indicated previously, this report (Volume One) should be read in conjunction with three additional volumes in the series *Curriculum Development in Studio Teaching*:

Volume Two: STP Academic Survey Report
Volume Three: STP Head of School Survey Report
Volume Four: STP Case Studies of Effective Practice

APPENDIX TWO
Indicators Linked to Sources

Indicators from the Literature

An analysis of 118 journal articles on studio in Art, Architecture and Design published over the last decade revealed that 11 key indicators most often underpinned assessment in studio. For a full description of the methodology used to develop these indicators see de la Harpe et al. (2009).

Indicator: Product (including event or object)

Indicator: Process

Indicator: Person

Indicator: Content knowledge

Indicator: Hard skills

Indicator: Soft skills

Indicator: Learning approach/style

Indicator: Technology

Indicator: Reflective practice

Indicator: Professional and innovative practice

Indicator: Interdisciplinary collaboration

Indicators from the STP Academic Survey

An analysis of the items on the STP Academic Survey that explored academic views on assessment and feedback revealed the following 15 key indicators were most often reported by academics as contributing to a successful studio project. Question 28 focused on reasons for successful projects; Question 29 on essential components of an ideal studio experience; Question 30 on best outcomes for students; and Question 32 on a best studio experience.

Indicator: Development of Tangible Outcomes – Quality of Project
Definition: The quality of the project produced by students.

Indicator: Critical skills
Definition: Student ability to think critically.

Indicator: Level of Challenge
Definition: Student ability to complete challenging projects indicating level of skill development and growth.

Indicator: Development of Skills
Definition: A wide range of skills developed by working through and completing project work, including developing and enhancing technical and problem solving skills.

Indicator: Acquisition of New Knowledge
Definition: New knowledge gained by working through and completing project work.

Indicator: Problem Solving Ability
Definition: Student ability to resolve problems, particularly in regard to producing projects.

Indicator: Student, Staff and Peer Interaction
Definition: Level of interaction with staff and peers, including student interaction during group work, studio environment, in feedback and critiques, and studio attendance.

Indicator: Personal Commitment/Engagement
Definition: The level of commitment/engagement demonstrated by the student through amount of effort and level of commitment, and connection with external world, such as partnering with industrial experts and clients and site visits.

Indicator: Experimentation
Definition: The level of experimentation demonstrated by the student.

Indicator: Improvement
Definition: The amount of improvement in the students' ability and practices.

Indicator: Relevance, clarity and flexibility
Definition: The relevance, clarity, and flexibility demonstrated by students are core components of high quality projects.

Indicator: Development of Intangible Outcomes – Knowledge, Abilities & Skills
Definition: The knowledge, abilities and skills gained.

Indicator: Critical Reflection
Definition: Learning by reflecting on success and failure in completing a project.

Indicator: Student Interaction with Third Parties/Environments
Definition: Student engagement with others, including industry professionals, clients, practitioners and environments outside the studio.

Indicator: Self directed learning
Definition: Working independently and leading and managing themselves and their project.

Indicators from Question 28

Indicator: Critical skills

Indicator: Level of Challenge

Indicator: Development of Skills

Indicator: Acquisition of New Knowledge

Indicator: Problem Solving Ability

Indicator: Student, Staff and Peer Interaction

Question 28 asked respondents to describe the major reasons for successful studio projects. The most frequent reason for successful studio projects cited was the "quality of the project." Project work was often mentioned as a good way for students to develop "critical skills" as a good learning outcome. In addition, the quality of projects was used as a proxy to illustrate the "level of challenge", "development of skills", "acquisition of new knowledge", and "problem solving ability", which might be seen as indicators of "good learning outcomes." One respondent commented that:

Students engaged with current urban design issues in all areas, as well as developing architectural propositions. The project stretched students' skills in all areas, providing them with new insights and skills in addressing complex design.

STP Academic Survey response

A high level of "student, staff and peer interaction" was the next major factor that respondents mentioned contributing to successful studio projects and could be seen as an indicator of good learning outcomes. Group work (with the qualification of a "positive healthy dynamic") was seen to allow for "skills sharing, brainstorming and peer critiques". The amount of time students spent in studio (attendance) was also seen as a crude measure of student-staff interaction.

Indicators from Question 29

Indicator: Personal Commitment/Engagement

Indicator: Experimentation

Indicator: Improvement

Indicator: Student, Staff and Peer Interaction

Indicator: Relevance, clarity and flexibility

Indicators: Development of Skills

Question 29 asked respondents to describe an ideal studio experience. The most mentioned factor contributing to an ideal studio was students' "personal commitment and engagement". Effort and commitment, and connection with external world, such as partnering with industrial experts and clients and site visits, were identified as showing personal commitment and engagement and were mentioned as important factors for an ideal studio experience and best outcomes for students.

Focusing on student "experimentation" was also mentioned as contributing to an ideal studio experience, for example, "focus more on learning than results, encouragement of experiment, tolerance of failure and enough time for ideas, experiment, and fixing mistakes." The amount of "improvement" the student or group had demonstrated throughout the study period (semester, etc.) was also seen as an important factor in an ideal studio experience.

Again, staff cited a high level of "student, staff and peer interaction", such as discussion, feedback and criticism, as well as student attendance and participation in studio exercises, such as discussions and critiques, as contributing to an ideal studio experience. The importance of informal communication and collaboration for improving group learning was emphasized.

Good quality projects that demonstrated "relevance, clarity and flexibility" were seen as also contributing to an ideal studio experience. A students' ability to demonstrate these characteristics was seen as contributing to good learning outcomes.

Lastly, the "development of skills" was identified as being "central to studio practice". Supporting, developing or enhancing technical skills, problem solving skills and "skill sharing" were all mentioned as indicators of an ideal studio experience.

Indicators from Question 30

Indicator: Development of Intangible Outcomes – Knowledge, Abilities & Skills

Indicator: Development of Tangible Outcomes – Quality of Project

Indicator: Critical Reflection

Indicator: Positive studio climate

Indicator: Student/Staff/Peer Interaction

Question 30 asked respondents to comment on what they considered to be the best outcomes of studio. The development of "intangible outcomes", including knowledge, abilities, and skills were most mentioned. Respondents also mentioned "developing knowledge about contemporary practice, ability to work effectively in groups and reflect on methodologies, creativity, and problem solving, communication and technical skills" as key attributes to develop as an outcome of studio. In addition to attributes gained by students, students' ability to work well in groups, critically reflect, and engage with social and cultural contexts, was also seen as additional intangible indicators.

The development of "tangible outcomes", including the students' ability to produce a high quality product or project was also mentioned as is indicative of a best outcome of studio. Factors like student's ability to deliver a project on time, to meet goals, to adhere to project requirements and the level of originality displayed, were all seen to be good outcomes associated with producing a high quality product. One respondent commented that:

> *A well recognised piece of work produced by students seems to be the most convenient way of showing best outcomes …. In general, it would be difficult to achieve good results without appropriate knowledge, abilities and skills, and a good piece of work shows the necessary knowledge, abilities and skills involved in its creation.*
>
> STP Academic Survey response

In addition, the importance of a "positive studio climate" where students learn from projects that failed or designing tasks that required students to "critically

reflect" on the process of delivering a project were mentioned as good outcomes of studio. Only considering the quality of projects was mentioned as missing the type of learning that occurs when students' projects 'fail'. A supportive "critical studio culture" that develops students' sense of "self-efficacy" were also identified as a best outcome for studio. A respondent noted that:

> *Good relationships, rapport and trust between students was considered to contribute to positive studio atmosphere and dynamics, as it helped to create a comfortable environment and emotional security for productive group cooperation, and valuable feedback and crits.*
>
> STP Academic Survey response

Again, "student, staff and peer interaction" were mentioned as best outcomes of studio, with "regular users of studio tending to be the students who do well and learn the most". Again, class participation and attendance was seen as contributing to achieving best outcomes in studio. Collaboration through group learning student interaction and skill sharing was also identified as contributing to good outcomes in studio, with a respondent commenting:

> *When two or more students work alongside one another they push each other along, the standard of work output is raised, it is possible to monitor much more easily and to encourage. They learn from each other, discover things together and achieve much more.*
>
> STP Academic Survey response

Indicators from Question 32

Indicator: Student Interaction with Third Parties/Environments

Indicator: Self-directed learning

Question 32 asked respondents to comment on what they considered contributed to their best studio experiences. Respondents identified "student interaction with third parties/environments" for example, fieldwork (place-based/situated learning) as contributing to best studio experiences. Student interaction with clients, industry professionals and practitioners were also mentioned as contributing to be best studio experiences, with one respondent commenting:

The best studio experiences have been those which involved physically taking students into a client's world which is totally unfamiliar to them, giving them a brief, and letting them understand the client's culture over an extended period of time. We have taken students to cotton farms, abattoirs, national parks, etc. The outcomes of these projects are always more considered and resolved.

STP Academic Survey response

Students engaging in "Self directed learning" and demonstrating leadership were also identified as factors in a best studio experience. Student self-direction allows for studio teachers to act as "mentors", "facilitators" and "collaborators". Finally, having a good student-staff ratio was mentioned as an important factor that contributed to a best studio experience.

Indicators from the National Forums

The analysis of the written proceedings of the 2007 National Forums on Studio Teaching (including the World Café sessions 3 and 4), revealed the following indicators. The analysis supported many of those previously identified in the literature and online academic survey.

Indicators from the 2007 National Forum on Studio Teaching

Indicators from Question Three

Question 3 asked what learning outcomes were considered "good" in studio? In the Thinking/Cognitive category, "Problem Solving Ability", "Synthesis", "Experimentation", "Critical Reflection" and "Independent thinking" were mentioned as indicators. The Ability to Rationalise Work by giving evidence for thinking was identified as a key aspect of studio pedagogy, including a student's ability to "frame" a project through "understanding and clarity of intention" and showing "contextual awareness" (ethical, cross-cultural, historical, theoretical). In the Collaboration/Team category, "engagement and interaction with peers" were mentioned. In the Creative/Visual/Process category "engagement", "experimentation", "critical reflection" and "creativity" featured. In the Skill/ Practice category "Critical Reflection" and "Development of Skills" all featured as indicators. In addition, the development of knowledge, abilities and skills, in terms of "displaying visual literacy/ visual culture"; "creative reworking of brief" and "interpretation/ translate, transform, transcend" were listed as good learning outcomes.

Studio experience is about … empowering students to think

STP Academic Survey response

Indicators from Question 4

Question 4 asked how do we know that students achieve "good" learning outcomes in a studio? What criteria do we use?

The Thinking/Cognitive category included "experimentation", "problem solving ability", "critical reflection", and "rationalization/communication ability", as well as the "acquisition of transferable skills", that is, to be adaptable and flexible and to fit into new contexts. The Creative/Process/Collaboration section featured "experimentation", "creativity", "interaction", "engagement", "problem solving ability", and "tolerating failure". A student's ability to communicate their work and to explicate the processes they used when undertaking a prescribed studio task was also mentioned. In addition, "self-awareness" described as "students' level of consciousness about their own processes" was considered a good learning outcome and the acquisition of transferable skills was also highlighted.

… get students to be conscious of their process based on reflection

STP Academic Survey response

Indicators from the Case Studies

An analysis of 18 examples of 'good practice' drawn from the case studies in Volume Four revealed 11 indicators. The case studies included accounts of disciplinary as well as inter- and cross-disciplinary practice. Academics identified learning issues that were addressed in their studio learning and teaching practice, as well as the aims and learning outcomes that were the focus in the studios. The studio practice was described together with a discussion of the benefits to students and the challenges that were faced, as well as ideas for improvement. The 11 indicators that emerged were:

Indicator: Practice outcome
Definition: The final product, practical project, exhibition, design portfolio, etc

Indicator: Knowledge
Definition: Discipline knowledge/expertise, protocols, theory/practice intersection

Indicator: Technical/technology skills
Definition: Representation for example, photographic skills, use of technologies in design process

Indicator: Soft skills
Definition: Problem solving, decision making, exploration and development of creative ideas, experimentation, risk taking, communication

Indicator: Collaboration
Definition: Contemporary work practices, teamwork, inter-disciplinary/cross-disciplinary and international/online collaboration, interaction among students and staff, community, networking

Indicator: Conceptual and critical thinking
Definition: Critical investigation and interrogation/questioning, objectivity, analysis, interpretation

Indicator: Presentation
Definition: presenting work for critique, justifying artwork/design

Indicator: Engagement
Definition: Critical engagement with art/design problem, environment or direction, engagement with new ideas, following through

Indicator: Reflection
Definition: Critical reflection on work in progress, completed work

Indicator: Professional practice
Definition: Industry readiness including professional confidence, industry level competency, industry connection

Indicator: Self-management
Definition: Independent learning, self-reliance, relating to others

The following section illustrates the connections between the practice examples in the case studies and the indicators that were drawn from them.

Indicator: Practice outcome

In the Practice Outcome indicator, academics highlighted the importance of scholarly/innovative responses to the brief, showing originality and individuality. Other factors mentioned were that solutions should meet the client brief and be cost-effective. For example, in one case study the students were required to,

> *… produce an installation on time and on budget ... the design brief included artistic, formal, functional, loading, sustainability, budgetary, and other performance criteria.*
>
> STP Academic Survey response

Indicator: Knowledge

The importance of discipline-specific knowledge is highlighted in one case study, for example, with a focus on students' ability to,

Identify and interpret relevant historical and contemporary contexts

STP Academic Survey response

Other case studies discussed inter- and multi-disciplinary learning experiences. One case study focused on a subject in a multi-disciplinary degree program and academic literacy was mentioned. The subject explores,

… the intersection between theory and practice … students are required to identify, research and articulate how practice and theory informs hybrid and/or discipline specific projects.

STP Academic Survey response

Indicator: Technical/technology skills

One case stood out in terms of the use of gaming technology for experimenting in the design process. It was pointed out that,

… gaming technology can assist architectural students design a 3D environment. The process allows students to be 'immersed' in their designs while making decisions that affect that space. It encourages students to experiment more rigorously with light, materials, colour etc when compared to the more traditional 3D model making materials … the speed of this process …[minimises] time-consuming standard drawing conventions ….

STP Academic Survey response

Indicator: Soft Skills

The Soft skills indicator included a focus on visual, written, spoken, interpersonal and cross-cultural communication. In addition, it was identified that it is important for students to be able to,

… respond to an opportunity … present ideas and concepts clearly … recognising and evaluating the relevant aspects of the approaches of others.

STP Academic Survey response

Indicator: Collaboration

Collaboration was a recurring theme in the case studies. There was particular emphasis on inter- and cross-disciplinary collaboration, to prepare students for contemporary ways of working. For example, two students commented,

> *… I learnt the role of each professional area in the design process, encouraging creative thinking and group dynamics (design student) … this is more like the real world (engineering student)*
>
> STP Academic Survey response

In one case study, some of the benefits and challenges were highlighted by the academic, in terms of forming groups of students. He observed that,

> *… mixed groups help to facilitate understanding between the discipline groups. Groups are asked to conduct a peer review of their groups at the end of the course to deepen their understanding of the group work process. A number of different strategies have been used for forming groups including grouping high-achieving students together; having groups self-select; and selecting groups randomly. None of these methods seem to work more effectively than any others, and all have their difficulties.*
>
> STP Academic Survey response

Indicator: Conceptual and critical thinking

Critical literacies were highlighted, including discussion and evaluation of complex ideas, as well as re-thinking and cross-pollinating ideas. There was also a focus on,

> *… using the discourse of the discipline [and] … analysing, evaluating and justifying concepts and works in progress.*
>
> STP Academic Survey response

Indicator: Presentation

As well as being able to justify the artwork/design, presenting work for critique was often mentioned in the case studies, for example,

> *Students had to present both their process and product highlighting rationales for strategies employed and difficulties encountered.*
>
> STP Academic Survey response

Indicator: Engagement

One case illustrated how, through engagement with a real environment, the learning process could be accelerated together with the development of confidence in expressing ideas. An art studio subject includes a field trip in the Tasmanian Wilderness. This is a direct response aimed to address the need to offer learning experiences that enable direct, extended and varied engagements with real environments. Through engaging with new experiences in the field trips, students have felt confident to take risks and

> *… work with new ideas and/or new media within the units ….*
>
> STP Academic Survey response

In another case study example, the development of graduate attributes was highlighted, including the ability to persist. It was seen as important to develop the following capacities:

> *… to follow through on an art/design idea from conception, through design development to realization as an art-work, installation, design object or architectural design [and] to think laterally, creatively and produce work with rigor and integrity.*
>
> STP Academic Survey response

Indicator: Reflection

The "action, reflection and reiteration model" was highlighted in one case study as underpinning studio practice. The critique process was also mentioned often in the case studies as being pivotal to learning and assessment in studio and in one instance a connection was made between the critique and developing the ability to self-reflect. Through developing the ability to engage in peer critique, one student said,

[I started] to then look for those things in my work … I guess that leads to self-reflection and evaluation.

STP Academic Survey response

Indicator: Professional Practice

The Professional practice indicator was referred to by many academics. Significant aspects of professional practice included strategic thinking, awareness of approaches used by artists/designers, awareness of ethical and moral responsibilities, and behaving as artists/architects/designers. It was seen as important that students,

… build their confidence in dealing with professional problems

STP Academic Survey response

"Professional literacy" was highlighted, including the ability to talk about practice in commercial terms. It was important for students to,

… demonstrate awareness of the strategies and concepts artists/designers use in solving problems and developing art and design projects ....

STP Academic Survey response

Indicator: Self-management

Self-management was mentioned with regard to learners taking individual responsibility, being empowered and in control of their own learning.

… they are in the driver's seat … they are in control of how and what they learn ….

STP Academic Survey response

There was particular emphasis on the ability to learn from and with others, as well as improving and developing confidence in expressing creative ideas and in giving and receiving constructive feedback/critique. The ability to follow through from idea to resolution was also identified as important. It was also mentioned that students need to be able to,

… apply and adapt ideas to multiple contexts and situations

STP Academic Survey response

One case study reported on the learning experience in relation to the students' personal growth, professional development and feelings. Student feedback indicated that, of all the respondents,

89% agreed that the project was relevant to their personal development … 98% agreed that the project work was relevant to their professional development … 19% valued the project most for their feelings of 'helping' and 'doing something worthwhile' and 13% felt it was a 'rewarding personal experience'.

STP Academic Survey response

Finally, in one case study the students had a role in developing the assessment criteria, while in another case the online feedback,

… enabled them to reflect on their previous work, track their progress, and see their growth throughout the semester.

STP Academic Survey response

Summary

In summary, the indicators identified through analysis of the findings of the online survey completed by studio teachers from Australian universities; the analysis of the world café exercise at the 2007 National Forum on Studio Teaching; and the 18 case studies developed from the 2008 National Forum on Studio Teaching showed significant overlap and similarity with those identified from the literature. While different terminology may have been used in some cases, the indicators synthesised in Part Five represent a comprehensive synthesis of indicators for assessment of learning outcomes in studio.

The indicators identified support the 'product', 'process', and 'person' dimensions of holistic assessment.

APPENDIX THREE
Toolkit

Studio Teaching Toolkit
www.studioteaching.org

The Studio Teaching Toolkit was developed as part of the Studio Teaching Project with the aim of sharing ideas and practice about the learning and teaching of studio practice in Art, Architecture and Design. It is intended that the toolkit be used by anyone involved in teaching studio in these discipline areas. It has a practical focus and provides users with a series of checklists, indicators and case studies of innovative and successful studio practice. It draws on information and ideas from two National Forums on studio teaching, a review of the literature addressing models of studio practice and assessment, national surveys of studio teaching, and the practice of colleagues in Art, Architecture and Design schools across Australia. The toolkit houses each of the "products" listed in the Executive Summary of this report.

The concept of an *online* toolkit was adopted to disseminate information quickly and easily to a wider Australian and international audience and to promote ongoing dialogue and discussion of ideas about current approaches to studio teaching and future practice. Future contributions by others, in the form of case studies, are welcomed and can be submitted via a link in the website.

What is included?

The toolkit is divided into the following headings and subheadings:

Using the toolkit
This provides a brief overview of the toolkit and how best to use it. It briefly outlines the differences and similarities between studio practice in Art, Architecture and Design and how they have been applied to the case studies and content within the toolkit.

What is studio?
This section includes a brief overview and definition of 'studio', and how it contributes to student learning. It briefly describes how studio is regarded not only as a mode of teaching and learning, but also as a culture, a constructed environment and a program.

It includes two subsections:

- Current models: this outlines the various models currently used in Art, Architecture and Design practice.
- Essential elements: this area highlights the essential elements of studio teaching – people, projects and tasks, facilities and resources, and time in studio.

Effective strategies
This section summarises effective strategies associated with studio practice. These strategies (benchmark statements) have been developed from responses by academics and heads of school to questions about the reasons for success of studios, best studio outcomes and comments about what constitutes an ideal studio experience. They also draw from discussions at national forums on studio teaching, specifically, those addressing effective practice in studio.

Assessment and feedback
This section presents the following:

- Indicators that can be used to assess good learning outcomes in studio
- Principles for applying the indicators
- Resources on assessment and feedback

Student experience
This section of the toolkit focuses on the student experience of studio. It presents a series of factors that lead students to describe learning experiences in studio as positive. These factors were drawn from student feedback included in the case studies developed as part of the Studio Teaching project.

Case studies
As described in Volume Four, examples of effective and innovative studio practice were identified by the project team for further research and development. These were drawn from Studio Teaching Forums, responses to the STP Academic and head of school surveys completed by staff in educational institutions around Australia. These examples were then followed up for more detailed information in subsequent telephone interviews and email correspondence.

Case studies are grouped into the following areas:

- Assessment, Feedback & Presentation
- Course Structure and Content
- Technology
- Cross-disciplinary, cross-cultural, interdisciplinary and experiential learning
- External links with industry, professional, cross sector
- All case studies

Your contributions
Academics and practitioners are encouraged to contribute examples of effective or innovative studio practice to be included in the case studies section of the toolkit. A case study template is provided. Participants are also encouraged to join the ALTC Exchange and contribute to discussions about Studio Teaching.

Dissemination

Dissemination of information about current approaches to studio teaching will include the provision and distribution of information through the website. In addition to this, academics are encouraged to engage further in an ongoing dialogue and dissemination of ideas regarding future practice by contributing case study material via the website.

The third national forum was held in Hobart, Tasmania in December 2009, in association with the Tasmanian Creative Arts Teachers Association, where these case studies were presented. From 2010, the website will be hosted by the University of Tasmania, and link in with the “Pathways” project website also being developed by the University of Tasmania.

APPENDIX FOUR
Forums

The Studio Teaching Project has provided a number of opportunities for studio teachers in Art, Architecture and Design to come together and share their practice. Information arising from the forums described below has been used extensively throughout the project and in this report, for example, in developing indicators to assess good learning outcomes in studio, in identifying examples of good practice, and in collecting information about various models of studio teaching.

The First National Forum on Studio Teaching (2007)

A complete copy of the Forum proceedings (2007) is available in the Resources section of the Studio Teaching website: www.studioteaching.org.

Over 100 academics attended the first National Forum on Studio Teaching on 10 July 2007. This one-day forum provided participants with an opportunity to discuss challenges and opportunities they encounter in studio teaching in Art, Architecture and Design. The focus of the day was to identify shared and contrasting approaches to studio and to begin to prioritise issues that arise in these disciplinary areas.

As a major forum linked to the ConnectED 2007 International Conference on Design Education (information on 2007 conference available via ConnectED – http://www.connected2010.com.au/past-conference) at The University of New South Wales, this event provided an unparalleled opportunity to interact with a diverse group of practitioners on the issue of Studio Teaching and to join a knowledge network of Studio practitioners.

The major outcome of the Studio Teaching forum is the proceedings document which is a 32 page illustrated publication. A copy of this publication was sent to each attendee of the forum, relevant heads of schools and other senior academics plus other interested parties. A copy of the proceedings was also sent to the library of each school or department whose discipline is covered by the forum discussions.

The forum contained two key working sessions. The first session used the 'World Café' methodology, a large group brainstorming session involving all participants. The session involved conversations on a series of small tables where participants talk for a period of time then move onto a new table. A 'host' was always present at each table to update participants on ideas

generated and to provide clarification where necessary. Questions explored by cross-disciplinary groups in this session included:

- What does studio mean in your discipline?
- What does best practice in studio look like – examples here and overseas?
- What learning outcomes do we consider 'good' in studio?
- How do we know that students achieve 'good' learning outcomes in studio? What criteria would we use?

At the conclusion of the session, written summaries were presented from each of the four groups.

The second session of the forum involved a number of concurrent disciplinary panels (Art, Architecture, Design, Digital Media) exploring the theme: *Environment and Challenges for Studio Teaching*. Each group was addressed by two speakers who were actively involved in studio teaching. Following the presentations each group discussed the topic: *What are the issues facing studio teaching in your discipline?* Each group summarized their discussion in five to seven points for presentation back to the larger group.

Following the workshops and presentations, comments and criticism was invited from an open forum of participants.

Evaluation

Evaluation forms were distributed at the end of the forum and 65 completed forms received. When asked what they found most useful, participants highlighted:

- Sharing of ideas and debate in **group discussions** (54%)
- Hearing different perspectives – the **diversity of ideas and models** (20%)
- **Meeting staff** from other institutions/disciplines/backgrounds (12%)
- Discussion with colleagues in the **same discipline area** (6%)
- Opportunity to **open the issue** of studio teaching (4%)
- **Format** and organisation of the forum (4%)

When asked what could be improved, some participants noted that the reporting back from groups discussions could be more directed (6%), that more focus was needed in discussions (9%), and that more time was required to develop discussions (4.6%). When asked what themes or issues they would like to have included in future forums, respondents suggested more focus on:

- assessment issues – strategies and examples
- practical issues/strategies to address common challenges
- best practice/examples of a range of studio models
- working towards defining studio in the disciplines

Participants' responses were used to develop the focus for the next Studio Teaching Forum (see below) that explored issues in the assessment of studio teaching and examples of effective practice in this area.

The Second National Forum of Studio Teaching: *Assessment* (2008)

A complete copy of the Forum proceedings (2008) is available in the Resources section of the Studio Teaching website: www.studioteaching.org.

The Second National Studio Teaching Forum (2008) was held at The University of New South Wales on 22 August 2008. The second forum built on the foundations established by the initial forum on studio teaching held in 2007. The 2008 forum included presentations of innovative assessment practices in the context of studio by 10 academics from The University of New South Wales, Curtin University of Technology, The University of Canberra, Southern Cross University, University of Tasmania, The University of Queensland and University of Technology, Sydney. The presenters gave papers examining in-depth studies of studio practice with effective student outcomes in the broad disciplines of Art, Architecture and Design.

A keynote address by Professor Peter Schneider (Chancellor's Scholar and Associate Dean, Academic Affairs, University of Colorado, Boulder, USA) opened the proceedings with a presentation on new approaches at the University of Colorado for the assessment of studio work in Architecture.

Following the concurrent presentation sessions, a workshop session was conducted to explore the topic: *What are the key indicators of good learning in a studio?*

The proceedings of the 2008 forum were published (electronically and hard copy) in late 2008 (see Zehner et al. 2008). The resource describes and reviews effective studio practices and curricula in terms of student learning outcomes. This publication is available in the Resources section of the Studio Teaching website: www.studioteaching.org

Evaluation

At the conclusion of the 2008 forum, a questionnaire was distributed to evaluate the success of the Studio Teaching program of speakers and activities and 23 forms were received. Participants were asked to indicate "to what extent the forum's aims were met" (1 = to a great extent; 5 = not at all). Responses are shown in Table V1.6.

Table V1.6 Extent to which forum aims were met by participants

	1	**2**	**3**	**4**	**5**
Networking with others interested in studio	9	7	6	1	0
Brainstorming best practices currently taking place in studio	7	14	2	0	0
Consulting with colleagues on priority issues for studio teaching	5	12	4	0	0
Creating a foundation for an ongoing knowledge on studio	11	7	4	1	0

Overall, responses showed that for the majority of respondents the aims of the forum were met. When asked what they found most enjoyable or useful about the forum, participants highlighted themed discussions, the keynote address, presentations from colleagues, practical ideas, new approaches, and networking and discussion. When asked about aspects that could be improved, a number of participants noted that they would have liked more time for extended discussion.

When participants were asked what themes or issues they would like included in future forums, their responses included blended learning, studio management, further strategies and approaches, dealing with large studios, principles underpinning studio learning and teaching, cultural issues and student diversity, sessional teaching, relationship of studio to professional practice, and skill development.

The Third National Forum on Studio Teaching (see below) showcases a large number of case studies of good practice in studio teaching (collected throughout the Studio Teaching Project) that address many of the themes suggested by respondents.

The Third National Forum on Studio Teaching: *Studio Teaching as a Creative Arts Pedagogy* (2009)

The Third National Forum on Studio Teaching was held at the Tasmanian School of Arts, University of Tasmania, Hobart, on 3-4 December 2009.

Recognising the core role of studio as foundational creative arts pedagogy, the forum sought to explore the ideas and projects undertaken to develop our practice as educators within the broad range of creative arts disciplines. Case study presentations were discussed, documented and published online to maximise opportunities for peer engagement in scholarship.

Presented jointly by the Studio Teaching Project and the University of Tasmania, as part of a three-year investigation into Integrated Tasmanian Creative Arts Education, the forum facilitated discussion of case study presentations about varying aspects of teaching within studio contexts and drew upon case studies developed within the two-year Studio Teaching Project, and by invitation.

People interested in preparing 20-minute presentations of their studio initiatives and experiences were asked to consider the following thematic groupings:

- Practices introducing students to studio – foundation studio
- Studio assessment
- Feedback to students (peer review, critique etc)
- Enhancing connections with professions and industry
- Cross-sector (VET), HE, etc.) initiatives
- Cross-disciplinary studio initiatives
- Programs within high schools that encourage links to tertiary study
- Experiential – field trip studio programs
- On-line and virtual studio initiatives
- Work-integrated studio
- Studio management initiatives (efficiency measures)

Highlights of the Studio Teaching Project report were presented and the online toolkit for studio teachers was launched at the forum. The forum was presented in association with the Tasmanian Arts Teachers' Association.

Integrated Tasmanian Creative Arts Education (ITCAE) is a three-year Commonwealth funded (Diversity and Structural Adjustment Fund) University of Tasmania and Tasmanian Polytechnic (formerly TAFE Tasmania) partnership project that seeks to identify and enhance creative arts learning pathways from year 11 to employment by:

- Mapping, reviewing and evaluating existing courses and pathways;
- Clarifying industry requirements, opportunities and expectations in order to maximising work integration within courses; and
- Identifying strategies for maximum effective and efficient use of capital and human resources in the development and delivery of Creative Arts education programs in Tasmania.

Summary

The Studio Teaching Forums reinforced the importance of dialogue, sense of community and supportiveness in studio teaching practices and its parallel importance to the teaching profession. Forum participants (2007, 2008 and 2009) frequently noted the importance of meeting as a group to identify and discuss common concerns and invariably look forward to similar events in the future.

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About the Studio Teaching Project Team

THE UNIVERSITY OF NEW SOUTH WALES

Robert Zehner (BA Amherst MA PhD Michigan, MASA MPIA) is Senior Associate Dean in the Faculty of the Built Environment at The University of New South Wales. He is a social scientist whose research and publications have focussed on responses of residents to living in various environments including new towns and planned communities, mining towns and award-winning medium density housing. His research has also included a longitudinal study of practicing planners and planning education, and three nationwide studies of local government responses to climate change. He came to the UNSW from the University of North Carolina as a Fulbright Scholar, and formally joined the School of Town Planning in 1976. He was the Chair of the Organising Committee for ConnectED 2007 International Conference on Design Education. He is a recipient of a UNSW Vice-Chancellor's Award for Teaching Excellence and an ALTC Citation for Outstanding Contributions to Undergraduate Learning, and has been an Assessor for the ALTC National Teaching Awards.

Graham Forsyth is Associate Dean (Academic) at the College of Fine Arts, The University of New South Wales. He has undertaken a number of integrated research projects into teaching and learning that address the nature of the 'student experience' and the ways curricula, assessment and teaching practices impact on this experience. He was part of the Organising Committee of ConnectED2007 International Conference on Design Education in 2007 and is Chair of the Organising Committee for ConnectED2010. Graham was recently awarded a Citation for Outstanding Contribution to Student Learning by the Australian Learning and Teaching Council. Graham is also currently undertaking research on teaching and writing practice about contemporary art and its interface with cultural and social forms. Graham's recent major writing project Flight Research Spin on the work of Rosemary Laing addresses the photographer's practice in the context of its political and ethical engagement with and within the charged multicultural environment of the late 20th Century.

THE UNIVERSITY OF QUEENSLAND

Elizabeth Musgrave [BDesSt Qld., BArch (Hons Class 1) Qld., MPhil Qld., RAIA] studied architecture at The University of Queensland and is a registered Architect. She has been a member of the Board of Architects of Queensland, the RAIA Queensland Chapter Education Committee and the School of Geography Planning and Architecture Teaching and Learning Committee. She is currently the Chair of the School of Architecture Teaching and Learning Committee and a member of the National Assessment Panel of the Architects Accreditation Council of Australia (AACA). Her research interests lie in the field of architectural design and architectural design pedagogy. In 2005 she received a commendation through the UQ Excellence

in Teaching Awards. Practice experience includes domestic, commercial and institutional project work. In 2004 the Hilltop House, completed in association with John Price Architect, was awarded the RAIA Brisbane Region 'House of the Year Award.'

Douglas Neale lectures in Architectural Design in The School of Architecture, The University of Queensland. He is an architect having worked in commercial practices between 1988-1999 in Brisbane and London. He has 20 years experience teaching all year levels of Architectural Design and since his appointment in 1999 has developed several innovative Studio teaching programmes including collaboration with visiting colleagues; Professor Tom Heneghan, Professor of Architecture, Tokyo University of The Arts and Donald Bates, Lab Architecture Studio. He has been an invited critic to design juries at QUT and RMIT. Research projects encompass the fields of architectural design and design pedagogy, representation and aspects of modernity in Australian Architecture. In 2006 he was invited by the Association of Australasian Schools of Architecture (AASA) Heads of Schools Workshop to reflect on teaching the year-long, self-directed, final year Studio he coordinated between 2004-2006. In 2006 and 2007 he was nominated for the UQ Awards for Excellence in Teaching. He is currently leading a UQ funded research project examining tacit knowledge and the role of process in architectural design studio learning.

RMIT UNIVERSITY

Fiona Peterson, MEd (Teaching), PhD, is Director of Learning & Teaching in the School of Creative Media at RMIT University. Her doctoral thesis was titled: "Technologically Speaking ... Creating a Strategic Knowledge Network and the new 'Network Advantage' for Global Education." Fiona's research interests include virtual communities and knowledge networks; Mode 2 knowledge production; and transdisciplinary approaches to research methodology for interaction design and visual communication. She is a Chief Investigator for the Virtual Communities Project in the Australasian Cooperative Research Centre for Interaction Design (ACID); and Principal Investigator in the Hewlett-Packard Teaching & Learning Innovation Project, "Digital Publishing and Virtual Mobility in a Creative Knowledge Network." The goal of the HP Virtual Mobility project is to analyse the studio model of learning and teaching, first in local and then in distributed community settings. A virtual studio has been established in which multimedia design and photography undergraduate students respond collaboratively to a design brief, across RMIT campuses in Melbourne and Ho Chi Minh City. She is the recipient of an ALTC Citation for Outstanding Contributions to Undergraduate Learning.

Barbara de la Harpe (BSc (Hons), Grad Dip Ed, PhD) is Associate Professor and Associate Pro Vice Chancellor (Learning and Teaching) in the College of Design and Social Context at RMIT University in which role she provides academic leadership for educational programs, learning and teaching activities and academic administration – including for programs in the areas of

Art, Architecture and Design. Barbara is an established scholar in the areas of area of learning, higher education pedagogy and change management. Over the years she has worked and published extensively in the areas of learning strategies, graduate capabilities, sustainability education, academic professional development and change management in tertiary contexts. She has been involved in the design, development and implementation of numerous large-scale projects and the implementation of systems across institutions. She has experience in curriculum design and development of capability based-curricula, and the evaluation of learning environments. She has developed resources to support learning and skill development. She has contributed to improved understanding of change management and quality improvement in different educational settings, and is a recent recipient of an ALTC Citation for Outstanding Contributions to Undergraduate Learning.

UNIVERSITY OF TASMANIA

Noel Frankham has been Professor of Art and Head of School, Tasmanian School of Art, University of Tasmania, since February 2002. He was Professor and Head of School with the South Australian School of Art, University of South Australia from June 1999 until January 2002. This followed four and a half years as Director of Object – Australian Centre for Craft and Design. Prior to Object, Noel was the Director of the Australia Council's Visual Arts/Craft Board, May 1989 until September 1994. Noel has been chair of the Australian Council of University Art and Design Schools since 2008.

Noel Frankham's research interests centre on public art, especially site-specific art and design. He has recently completed an Australia Council-funded exhibition, Trust, in partnership with the National Trust of Australia (Tasmania) for the 2009 Ten Days on the Island Festival. In 2007 he co-curated Port Arthur Project, with Port Arthur Historic Site and Ten Days on the Island. He edited the book, *Claiming Ground: twenty-five years of Tasmania's Art* for Public Buildings Scheme in 2005. Frankham and Martin Walch worked throughout 2003 with a team of artists, writers and historians in partnership with the developers, architects, designers and tenants to contribute interpretative art and design to the Henry Jones Art Hotel, the key element in the redevelopment of Hobart's historic Hunter Island precinct. Noel has undertaken several significant research and review projects for government. Arts SA commissioned Frankham and Dr Gini Lee to review the State's public art and design program and policy during 2000. Frankham presented a refereed and web-published paper, Attitudes and Trends in Australian Art and Design Schools, within the 2006 Australian Council of University Art and Design Schools' national conference. The paper raised concerns about the current state of Australian art and design schools with particular reference to risks facing traditional studio teaching. The paper was supported by an informal survey of art schools undertaken in 2005 and 2006.

UNSW (PROJECT MANAGER MARCH – DECEMBER 2009)

Stephanie Wilson is currently part of an education team working on a range of learning and teaching initiatives in the Faculty of the Built Environment at The University of New South Wales. She has a background in music, teaching and performance, completing her PhD research with the School of Music and Music Education at the University of New South Wales in 1999. Following this, Stephanie obtained a Graduate Certificate in University Learning and Teaching and was employed by the Learning and Teaching Unit (UNSW) to coordinate projects, facilitate workshops and develop resources to support academic staff with their teaching practice. This included developing a series of booklets on developing and assessing graduate attributes, an induction booklet for new academic staff, printed resources and a website to support staff teaching first year students, and workshops within the Foundations of University Learning and Teaching program. Stephanie has a particular interest in the role of creativity in higher education learning and teaching.