A STUDY OF DESIGN EDUCATION IN THE AUSTRALIAN VOCATIONAL EDUCATION AND TRAINING CONTEXT

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In this thesis, the TAFE design education system, within the Australian Vocational Education and Training (VET) context, has been investigated with reference to the views, concerns and aspirations of teachers, as one of the important groups of stakeholders influencing the quality of the design programs and their outcomes for graduates. From a critical review of the literature on recent developments in VET, and TAFE design education practices, it is found that there is a clear need for conducting an empirical investigation into the views of TAFE design teachers, especially with respect to their influence on the current, and future, design and operation of TAFE design education. The purpose of this investigation is to identify, from experimental research, the parameters and related variables, which may affect the design and operation of the noted system. With respect to design thinking and processes, it is found that a number of models of the design process exist, and that it is possible to adapt a selected model and use this, at least in general terms, to describe typical developmental phases of a TAFE design education system, all in the context of a systems design/engineering context. This research has developed a novel parametric model and related constituent variables, and carried out a pragmatic experimental program to collect data using one-on-one and focus group interviews. These data have been analysed using NVivo and Leximancer qualitative data analysis software combined with recursive parsing techniques. These software tools have been used to develop a systematic method for classifying, organising and analysing empirical data. From the analysis of these data, it is found that an enhanced parametric model of the noted system can be proposed that is populated with important parameters, and their constituent variables, and informed by the views of the design teachers serving in the participating TAFE institutes. The findings of this research show that the parametric model and pragmatic approach used in this study provide a useful framework for analysing the TAFE design education system, which may also be adapted to study the views of other stakeholders of similar systems. A substantial database of original, empirical information about the noted TAFE design education system has been compiled, which may be applied to inform the current and future design and operation of such systems. Finally, recommendations are made for future research.
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Appendix 1: Voice files recordings of interviews (on DVD in .MSV format which may require relevant software to play back).

Appendix 2: Full interview transcripts (on DVD in PDF format)

Appendix 3: Recursive parsing results (on DVD in PDF format)

Appendix 4: NVivo project – software is required to read this project, however it is not essential for reading and understanding of the thesis, as the project data analysis and results have been explained. A trial version of this software may be downloaded from http://www.qsrinternational.com

Appendix 5: Leximancer maps – software is required to read these maps, however it is not essential for reading and understanding of the thesis, as the project data analysis and maps have been explained. A trial version of this software may be downloaded from https://www.leximancer.com

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DEDICATION AND ACKNOWLEDGEMENTS

The author wishes to dedicate this thesis to his parents who provided encouragement and continuous support to their son, but who are no longer among us to join the family in celebrating its completion.

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This glossary is a selected extract from the VET Glossary that has been compiled by Radhika Naidu and is available as a source on the NVCER website.
www.ncver.edu.au sighted 01/03/2010

Accelerated training
A period of intensive vocational training or re-training which enables individuals to obtain the necessary qualifications in a much shorter period than usual in order to enter an occupation at the required level.

Acceleration
Progression through an education or training program at a faster rate than usual.

Accreditation
The formal recognition of a vocational education and training course by the State or Territory course accrediting body, in accordance with the Standards for State and Territory Registering and Course Accrediting Bodies.

Accredited course
A course that is developed to meet training needs that are not addressed by existing training packages. The National Training Information Service (NTIS) provides details of nationally accredited courses and the training providers that deliver these courses.

Adult education
Education programs designed for adults, often incorporating approaches to education which draw on the learner's life or work experiences, involve learners in planning the learning activities, encourage learning in groups, as well as more self-directed learning.

Adult learning
The processes by which adults learn and build on their existing knowledge and skills.

Australian National Training Authority - ANTA
An Australian government statutory authority established in 1992 to provide a national focus for vocational education and training. From 1 July, 2005, all its responsibilities were transferred to the then Department of Education, Science and Training (DEST).

106 Naidu, R., (2008), VET Glossary, NCVER, Adelaide, SA
ANTA Agreement

A ministerial agreement between the Commonwealth, state and territory governments that provided the basis for joint partnerships between governments, with industry, in the development and refinement of a national vocational education and training system. From 1 July, 2005, the responsibilities of the Australian National Training Authority (ANTA) were transferred to the then Department of Education, Science and Training (DEST).

ANTA Ministerial Council - MINCO

A body, comprised of the Commonwealth, state and territory ministers responsible for vocational education and training, which decided national policy, objectives and priorities for vocational education and training. Now called the Ministerial Council for Vocational and Technical Education (MCVTE).

Australian Quality Training Framework - AQTF

A set of nationally agreed quality assurance arrangements for training and assessment services delivered by Australian training organisations. The AQTF comprises standards for registered training organisations (RTOs) and standards for State and Territory Registering and Course Accrediting Bodies. The first version of AQTF was implemented in 2002. It was revised in 2005 and again in 2007 (AQTF 2007).

AQTF 2007


Articulation

The arrangements which facilitate the movement or progression of students from one course to another, or from one education and training sector to another.

Assessment validation

A process where assessors collaborate to compare and evaluate their assessment methods, tools, procedures and decisions against relevant competency standards to ensure quality and consistency in the assessment event.

Australian Qualifications Framework - AQF

A unified system of national qualifications in schools, vocational education and training (TAFEs and private providers) and the higher education sector (mainly universities). The qualifications are: Senior Secondary Certificate of Education; Certificate I; Certificate II; Certificate III; Certificate IV; Diploma; Advanced Diploma; Associate Degree; Bachelor Degree; Vocational Graduate Certificate; Vocational Graduate Diploma; Graduate Certificate; Graduate Diploma; Masters Degree; Doctoral Degree. URL: http://www.aqf.edu.au/
Australian Standards Framework - ASF
A set of eight competency levels established by the National Training Board to serve as reference points for the development and recognition of competency standards. The Australian Standards Framework is no longer in use.

Basic skill
A fundamental skill that is the basis of later learning or is essential for employment. The skills and competences needed to function in contemporary society, including listening, speaking, reading, writing and mathematics.

Competency
An individual's demonstrated capacity to perform a task or skill, i.e. the possession of knowledge, skills and personal attributes needed to satisfy the special demands or requirements of a particular situation.

Competency standard
An industry-determined specification of performance which sets out the skills, knowledge and attitudes required to operate effectively in employment. In vocational education and training, competency standards are made up of units of competency, which are themselves made up of elements of competency, together with performance criteria, a range of variables, and an evidence guide. Competency standards are an endorsed component of a training package.

Competency-based assessment - CBA
The gathering and judging of evidence in order to decide whether a person has achieved a standard of competence.

Competency-based training - CBT
Training which develops the skills, knowledge and attitudes required to achieve competency standards.

Contextualisation
Tailoring a unit of competency or module to make it relevant to the specific needs of enterprises, industry sectors or particular client groups. Contextualisation rules are stated both within training package qualifications and accredited courses.

Core competency
A unit of competency within a competency standard that an industry has agreed is essential to be achieved if a person is to be accepted as competent at a particular level. All units may be core, but in many cases competency at a level will involve core units plus optional or specialisation units of competency. Core competencies are normally those central to the work of a particular industry or occupation.
Credit transfer

The granting of status or credit by an institution or training organisation to students for modules (subjects) or units of competency completed at the same or another institution or training organisation.

Current competency

A competency which continues to have currency in an industry or occupation. People can lose competence over time and may need further training and practice to demonstrate current competency.

Department of Education, Employment and Workplace Relations - DEEWR

This new Commonwealth department was created following the 2007 election. It replaces the former Department of Education, Science and Training (DEST) and the Department of Employment and Workplace Relations (DEWR).

Department of Education, Science and Training - DEST

The Commonwealth department that was responsible, from 2001-2007, for school education, career development, training and skills, higher education, research, international education, Indigenous education, and science and innovation. Former Commonwealth departments responsible for education and training were the Department of Employment, Education and Training (DEET), the Department of Employment, Education, Training and Youth Affairs (DEETYA) and the Department of Education, Training and Youth Affairs (DETYA). Following the 2007 election, the newly formed Department of Education, Employment and Workplace Relations (DEEWR) replaced DEST and the Department of Employment and Workplace Relations.

Deveson report

A landmark report prepared by an independent review committee chaired by Ivan Deveson and published in 1990. The report established the concept of the open training market which encourages diversity and competition amongst vocational education and training providers. Its formal title is 'Training costs of award restructuring: report of the Training Costs Review Committee'.

Employability skills

The skills which enable people to gain, keep and progress within employment, including skills in the clusters of work readiness and work habits, interpersonal skills and learning, thinking and adaptability skills.

Endorsement

The term used for the formal approval or recognition by the National Quality Council (NQC) of the core components of a training package, i.e. the competency standards, assessment guidelines and qualifications.
Entry-level skill

A skill required to commence employment in an organisation or more generally, to gain entry into the workforce.

Finn report

This landmark report of a committee of the Australian Education Council chaired by Brian Finn, published in 1991, proposed new national targets for participation and levels of attainment in post-compulsory education and training, recommended reform of entry-level training arrangements, and identified six key areas of competence essential for all young people in preparation for employment. Its full title is 'Young people's participation in post-compulsory education and training'.

Flexible delivery

A range of approaches to providing education and training that give learners greater choice of when, where and how they learn. Flexible delivery may involve distance education, mixed-mode delivery, online learning, self-paced learning, self-directed learning, or combinations of these.

Flexible learning

The provision of a range of learning modes or methods, giving learners greater choice of when, where and how they learn.

Formative assessment

Assessment that takes place at regular intervals during a course with feedback provided along the way to help improve the student’s performance.

Generic skill

A skill which is not specific to work in a particular occupation or industry, but is important for work, education and life in general, e.g. communication skills, mathematical skills, organisational skills, computer literacy, interpersonal competence, and analytical skills.

Graded assessment

The practice of assessing and reporting aspects of varying levels of performance in competency-based vocational education and training. It is generally used to recognise excellence.

Hilmer report

The report of the Independent Committee of Inquiry chaired by Professor Fred Hilmer, released in 1993, which provided recommendations on the form, content and implementation of a national competition policy in all aspects of government services. In the vocational education and training sector, this resulted in the development of the open training market. The full title of this report is the 'National competition policy'.

Industry organisation

An organisation representing an industry, including peak business and employer organisations and industry advisory bodies such as the industry skills councils.

Industry Skills Council - ISC

A set of 10 national bodies that have replaced the former national Industry Training Advisory Bodies (ITABs). They provide advice to Australian, state and territory governments on the training that is required by industry. The 10 ISCs are: Agri-Food Industry Skills Council; Community Services and Health Industry Skills Council; Construction and Property Services Industry Skills Council; ElectroComms and Energy Utilities Industry Skills Council; Government Skills Australia; Innovation and Business Industry Skills Council; Manufacturing Industry Skills Council; Resources and Infrastructure Skills Council; Service Industry Skills Council; and Transport and Logistics Industry Skills Council.

Industry Training Advisory Body - ITAB

An autonomous industry body which was recognised by governments as the major source of advice from industry on training matters. ITABs existed at both national and state levels. In 2003, following the restructuring of the national industry training arrangements by the Australian National Training Authority, the national ITABs were replaced by 10 Industry Skills Councils. Some state and territory based ITABs continue to exist.

Informal education

The acquisition of knowledge and skills that usually occurs outside the classroom.

Integrated assessment

An approach to assessment that covers multiple elements and/or units of competence from relevant competency standards. The integrated approach attempts to combine knowledge, understanding, problem solving, technical skills, attitudes and ethics into an assessment task to reduce the time spent on testing and make assessment more 'authentic'.

Kangan report

This landmark report of the Australian Committee on Technical and Further Education (ACOTAFE) chaired by Myer Kangan, published in 1974, examined needs and priorities in technical and further education and made a series of recommendations particularly in relation to funding. The report recognised the importance of technical and further education as an integral part of the nation's education system, and saw its primary role as the development of the individual rather than the development of skilled manpower. The full title of this report is 'TAFE in Australia: report on needs in technical and further education'.
Key competency

Any of several generic skills or competencies considered essential for people to participate effectively in the workforce. Key competencies apply to work generally, rather than being specific to work in a particular occupation or industry. The Finn Report (1991) identified six key areas of competence which were subsequently developed in the Mayer Report (1992) into seven key competencies: collecting, analysing and organising information; communicating ideas and information; planning and organising activities; working with others and in teams; using mathematical ideas and techniques; solving problems; and using technology.

Learning pathway

A path or sequence of learning or experience that can be followed to attain competency. Learning pathways may be included as part of the non-endorsed component of a training package.

Learning strategy

A non-endorsed component of a training package which provides information on how training programs may be organised in workplaces and training institutions. This may include information on learning pathways, model training programs, and training materials.

Lifelong learning

The process of acquiring knowledge or skills throughout life via education, training, work and general life experiences.

Logbook

A record kept by a person of the knowledge, skills or competencies attained during on- or off-the-job training.

Mayer Report

This landmark report of a committee chaired by Eric Mayer, released in 1992, developed the concept of key competencies recommended in the Finn report (1991). The full title of this report is the 'Key competencies: report of the Committee to advise the Australian Education Council and Ministers of Vocational Education, Employment and Training on employment-related key competencies for post-compulsory education and training'.

Multiskilling

Training of workers in a number of skills which enables them to perform a variety of tasks or functions across traditional boundaries. Multiskilling may be horizontal (broad skilling), vertical (upskilling) or diagonal (contributory skilling).
National Framework for the Recognition of Training - NFROT

A framework which established national principles for accreditation of courses, registration of training providers, credit transfer, recognition of prior learning, and assessment. It was replaced by the Australian Recognition Framework (ARF), now the Australian Quality Training Framework (AQTF).

National Training Information Service - NTIS

Developed by federal and state governments to provide access to current and emerging training market information and products in vocational education and training, it comprises a database of vocational education and training accredited courses, competency standards, training packages, and training providers.

Off-the-job training

Training which takes place away from a person's job, usually off the premises, e.g. at TAFE, but may also be on the premises, e.g. in a special training area.

On-site training

Training conducted at the work site (e.g. in a training room) but not on the job.

On-the-job training

Training undertaken in the workplace as part of the productive work of the learner.

OTTE

Office of Training and Tertiary Education in the Victorian Department of Innovation, Industry and Regional Development (DIIRD). Now called Skills Victoria, its role is to plan, regulate and deliver a range of education and training programs and services in Victoria.


Outcomes-based education

An educational system focussed and organised around clearly defined outcomes which students are expected to demonstrate upon completion.

Packaging

The process of grouping competencies in a training package into combinations which represent whole jobs or key functions that are relevant to the workplace.

Performance criteria

The part of a competency standard which specifies the required level of performance to be demonstrated by students to be deemed competent.

Portable skill

A skill or competency that can be transferred from one work context to another.
Prerequisite
In vocational education and training, a requirement for admission to a particular course or module, e.g. satisfactory completion of a specific subject or course, at least five years in the workforce, etc.

Qualification
Certification awarded that recognises the successful completion of a course that has prepared a person for employment and or further education and training.

Quality endorsement
The formal recognition awarded by a state or territory registering or training authority to a registered training organisation (RTO) on the basis of its implementation of a quality system.

Re-training
Training to facilitate entry to a new occupation.

Recognition
The formal approval of training organisations, products and services operating within the vocational education and training sector (as defined by state and territory legislation).

Recognition of prior learning - RPL
The acknowledgement of a person's skills and knowledge acquired through previous training, work or life experience, which may be used to grant status or credit in a subject or module. It can lead to a full qualification in the VET sector.

Reverse articulation
Also called: Reverse transfer
Movement of students from higher education into vocational education and training.

Skill
An ability to perform a particular mental or physical activity that may be developed through vocational training or practice.

Skill development
Also called: Skill formation
The development of work-related skills or competencies through vocational education and training.
South Australian Tertiary Admissions Centre

Acronym: SATAC

Processes and accepts applications for courses on behalf of the four universities in South Australia and TAFE SA.

Structured workplace learning - SWL

Also called: Vocational placement
Work placement

The on-the-job or work placement component of a VET in Schools program. The competencies or 'learning outcomes' commonly reflect nationally recognised, industry-defined competency standards. The student is not paid by the employer.

Summative assessment

Assessment that occurs at a point in time and is carried out to summarise achievement at that point in time. Often more structured than formative assessment, it provides teachers, students and parents with information on student progress and level of achievement.

TAFE

(1) Technical and Further Education, a government training provider which provides a range of technical and vocational education and training courses and other programs (e.g. entry and bridging courses, language and literacy courses, adult basic education courses, Senior Secondary Certificate of Education courses, personal enrichment courses, and small business courses). Each state its own TAFE system: TAFE NSW; TAFE Queensland; TAFESA; TAFEWA; TAFE Tasmania; Office of Training and Tertiary Education in Victoria. Northern Territory and Australian Capital Territory do not have separate TAFE sectors but provide vocational education through the tertiary education sector. (2) An institution offering TAFE courses; a college or institute.

Tertiary admissions centre - TAC

A state-based central office that receives and processes applications for admission to participating higher education providers (providers). Rather than applying separately to each institution, TACs streamline the application process by accepting a single application from a person that contains a list of preferences. The Northern Territory and Tasmania do not have a central admissions office. The following are the TACs for the other states and ACT: New South Wales and Australian Capital Territory - Universities Admissions Centre (UAC); Queensland - Queensland Tertiary Admissions Centre (QTAC); South Australia - South Australian Tertiary Admissions Centre (SATAC); Victoria - Victorian Tertiary Admissions Centre (VTAC); Western Australia - Tertiary Institutions Service Centre (TISC).
Tertiary entrance rank - TER

A ranking of students (usually based on results in the Senior Secondary Certificate of Education) used by universities and some providers of vocational education and training courses when selecting students who will be offered places in particular courses.

Training package

An integrated set of nationally endorsed standards, guidelines and qualifications for training, assessing and recognising people's skills, developed by industry to meet the training needs of an industry or group of industries. Training packages consist of core endorsed components of competency standards, assessment guidelines and qualifications, and optional non-endorsed components of support materials such as learning strategies, assessment resources and professional development materials.

Unaccredited training

Training that does not lead to a nationally recognised qualification. The training activity must have a specified content or predetermined plan designed to develop employment related skills and competencies. It does not include apprenticeships and traineeships and other nationally recognised training.

Unit of competency

A component of a competency standard. A unit of competency is a statement of a key function or role in a particular job or occupation.

Vocational competency

Vocational competency in a particular industry consists of broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry. Vocational competencies must be considered on an industry-by-industry basis and with reference to the guidance provided in the assessment guidelines of the relevant training package.

Vocational education and training - VET

Post-compulsory education and training, excluding degree and higher level programs delivered by further education institutions, which provides people with occupational or work-related knowledge and skills. VET also includes programs which provide the basis for subsequent vocational programs. Alternative terms used internationally include technical and vocational education and training (TVET), vocational and technical education and training (VTET), technical and vocational education (TVE), vocational and technical education (VTE), further education and training (FET), and career and technical education (CTE).
Vocational placement

Also called: Structured workplace learning
Work placement
A period of unpaid work with an employer undertaken by vocational education and training students in order to satisfy the requirements of a course or module, with supervision provided by the employer, the training provider or both.

Vocational qualification

Qualifications that are delivered by registered training organisations such as TAFE, private providers and vocational divisions of universities that are nationally recognised.

Work placement

Also called: Structured workplace learning
Vocational placement
A period of unpaid work with an employer undertaken by vocational education and training students in order to satisfy the requirements of a course or module, with supervision provided by the employer, the training provider or both.

Work-based learning - WBL

Programs for both secondary and postsecondary students which provide opportunities to achieve employment-related competencies in the workplace. Work-based learning is often undertaken in conjunction with classroom or related learning, and may take the form of work placements, work experience, workplace mentoring, instruction in general workplace competencies, and broad instruction in all aspects of industry.

Work-based training

Training provided by an organisation primarily for its own employees using the employer's own staff or external consultants. Work-based training can be conducted either on-site or at an off-site location.

Workplace assessment

The gathering and judging of evidence during normal work activities in order to determine whether a required standard of competence, knowledge or skill has been achieved. Workplace assessment usually involves observation of work in progress, checking the product(s) of a work activity, and receiving oral responses to questions posed while work is in progress.

Workplace learning

Learning or training undertaken in the workplace, usually on the job, including on-the-job training under normal operational conditions, and on-site training, which is conducted away from the work process (e.g. in a training room).
1. INTRODUCTION

1.1 BACKGROUND

This thesis is a study of design teaching and learning practices in the Vocational Education and Training (VET) sector in Australia. It investigates the views, criticisms and aspirations of design teachers serving in the Technical and Further Education (TAFE) Institutes located in most States in Australia. While there are other fundamentally important groups, such as students, administrators and Government officials, involved in TAFE, it is widely recognised that design teachers represent a major group of stakeholders affecting the efficacy of the TAFE design education system.

As will be noted in this Introduction, the government funded TAFE Institutions represent a dynamic system of education critical to developing Australia’s industrial and social wellbeing. This TAFE system has undergone many reviews and changes over the last ten to twenty years as the Governmental authorities have attempted to address changes in work patterns and the introduction of new technologies in industry and society. Relatedly, design education, as a subsystem of the TAFE system, has had to conform to these changes as best as it could – given that this is a relatively small area of the overall TAFE system.

Interestingly, few of the above reviews have been directed to the design education sector of TAFE – at least in the case of government administered Institutions. Consequently, TAFE design teachers, in a variety of disciplines such as interior, furniture and graphic design, have had to comply, as far as possible, with Training Packages and other standardised instruments that have not been necessarily developed for them.

And yet, it is reasonable to assume that how the TAFE system is perceived by the respective design teachers is a critical consideration affecting the harmony and effectiveness of this system.
This thesis employs a “systems” approach to investigate the views and aspirations of TAFE design teachers in order to identify possible areas of concern as well as improvement for the system. As an important part of this investigation, it has been found helpful to develop a novel model of the Australian TAFE design education system, which can also be used as a research tool, driven by appropriate analytical software, to identify and analyse the teachers views and aspirations noted above. The model can also be used to represent the main parameters and related variables which characterise the TAFE design education system – at least from the perspective of the teacher stakeholders.

This Introduction includes a very brief mention of the reviews and changes mentioned above, in order to set the context and to highlight what reviews, if any, have applied specifically to improving the delivery of design education in the TAFE sector. This will be followed by a substantial literature review in Chapter 2 in order to determine the state of the art and to clarify the research tasks. Chapter 3 describes the development of relevant theory and discusses in detail the research methodology and empirical experimental program employed in this thesis. Chapter 4 contains the results of the experimental program and details the noted parametric model of the design education system. Chapter 5 summarises findings and conclusions and makes recommendations for future research. It is now timely to outline in brief the TAFE reviews and changes mentioned earlier before presenting the Context and Scope of this thesis together with the Aims and Research Questions of this thesis.

Recently, a number of Australian Government sponsored reviews have highlighted the need to reform VET across various disciplines. In 2004, the Federal Government commissioned a major review of VET education policies that resulted in the ‘Working together: Industry and VET provider training partnerships’ report\(^2\) [1]. The authors, Callan and Ashworth, pointed out in this report that there had been a rise in niche training markets, enterprise specific training and in new or increased tuition fees as a result of encouragement for training providers, in a increasingly deregulated training market, to work on developing training agreements with industry sectors. The Callan and Ashworth review also found that industries,

overall, were quite satisfied with the partnerships and that there were three interconnected factors that influence their success:

1. The characteristics of the training environment – including size, reputation and degree of formality of the partnership.
2. The training model used, and
3. Finding the right people with the right skills. [Callan and Ashworth 2004 p.22].

Some training providers informed the review that the noted partnerships had assisted with improving industries’ attitude towards the training providers, and that this led to the development of new training opportunities. In addition to a greater recognition for the providers in the training market, another benefit was that teachers and students gained access to the latest equipment, technologies and more varied staff development opportunities. The partnerships also allowed the delivery of what otherwise what would have been less viable specialised training.

However, there were some interesting criticisms leading to suggestions for improvement in the mentioned report. Industry pointed to TAFE’s inconsistent approaches towards partnership building reflected by the level of engagement with industries, while TAFE’s outlined problems with the bureaucratic nature of their institutions, which resulted in gaps and differences in organisational culture between units within TAFE. Further, recognising the dynamic nature of change in industries and the challenge to keep pace, TAFE Institutions felt restricted by competing priorities tied to government funding which required a high level of accountability and quality assurance. In addition there were persistent negative views about TAFE’s ability to provide relevant and flexible training that reflected current industry practices. It was also noted that state regulations made partnerships across boundaries more difficult, and that TAFE needed to change teachers working conditions to make them more flexibly available to workplaces throughout most of the year.

In 2006, the Australian Education Union (AEU) commissioned the TAFE Futures Inquiry to provide various stakeholders with an opportunity to express their views about the future of TAFE. Having found that there was a strong public support for TAFE’s role as the first choice
provider of post-compulsory vocational education the report (Kell, 2006)\(^3\) [2] outlined principles for renewal and change, as summarised below:

1. Recognition of a broader organisational role for TAFE to effectively engage with the stakeholders.
2. Shift in balance in TAFE’s approaches from predominantly client focus on industry and government to one focussed on meeting the needs of adult students.
3. Reaffirmation of TAFE role as a ‘second chance’ education provider for all Australians to increase post-compulsory education participation.
4. Recognition of the autonomous TAFE teaching profession to improve career structures for teachers through professional development opportunities.
5. Review of policies that had reduced funding to TAFE and greater investment.
6. Creation of a more collaborative environment, networks and relationships between federal and state governments for addressing the needs of the national VET sector.

In 2005, the Australia Council together with the then Australian Government Department of Education Science and Training (DEST), (and now the Australian Government Department of Education, Employment and Workplace Relations [DEEWR]), commissioned a national review of education in visual arts, craft, design and visual communication. Unfortunately design education in TAFE was not embraced by this national review.

The above reviews are indicative of the fact that very few studies yielding experimental data about design education in the VET sector appear to be available and this is an important motivating factor underlying this research thesis. One relevant study is: ‘Development of a methodological framework for design education in the Vocational Education and Training sector: with particular reference to a praxis relevant post-modernity approach’ (Roantree, 2000)\(^4\) [3].

This investigation of published government reports suggested that since the reforms implemented to establish the Australian National Training Authority (ANTA) in 1992, (and since abolished in July 2005), TAFE Institutes have continued to play a significant role in the training of designers and design assistants across a broad range of disciplines in the creative

\(^3\) Kell P., (2006), *TAFE Futures: an inquiry in the future of Technical and Further Education in Australia*, AEU

industries. There has been continual growth here and overseas judging by the well known popularity of design courses with both local and international students. The reforms included the move to a national training system after the publication of the Australian Government policy document ‘Working Nation’ in 1994\(^5\) [4] which outlined the objectives of VET in the context of establishing an environment for economic growth.

To ensure that a standardised and unified TAFE system functions in each state and territory, a national Australian Standards Framework (ASF) for registration and accreditation, qualifications and skills standards was introduced by ANTA in the following years. These reforms also established the leading role of industry and union organisations in determining the required training needs and standards. However, there appears to be little published data about how the various stakeholders in VET, especially the design Teachers, have reacted to these changes.

Arts Training Australia (ATA) was the appointed body to consider the development of arts related competency standards for the creative industries. Industry advocates generally considered the development of the standards as an improvement and clarification of the training needs in the training system. Practitioners and educators in the Arts and Design communities have been less enthusiastic due to their perception that competency standards were inconsistent with the striving for excellence in art and design work and lead to less desirable standardised performance\(^6\) [5]. They also thought that the competency-based approach was:

“unable to account for the complex conceptual knowledge, and focused instead on the technical skills; that they are too outcome oriented and do not take account of perceptual, technical and conceptual processes of making; and, that they are unable to account for unquantifiable intangibles such as creativity”\(^7\) [5]

Clearly these are serious misgivings on the part of the teacher-educators, although few empirical studies have been published.

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\(^5\) Commonwealth of Australia (COA), (1994), *Working Nation*


\(^7\) ibid
Nevertheless, National Design Competency standards that complied with the Australian Standards Framework (ASF) were developed to enable comparison between levels of competency across industries, between industries and between sectors within industries. In general, this proved to be and still appears to be controversial in the context of the existing diverse range of design disciplines for which training is provided by the TAFE system, and more research is required to clarify stakeholder views.

Some aspects of design practice, such as design and problem solving processes, practice and project management, as well as some broad aspects of contextual theory can be considered to be generic and transferrable across a range of design disciplines, while other aspects are specific to particular disciplines. The main areas of differentiation appear to exist in the technical side of design practice, such as discipline specific technology applications, materials, techniques and processes associated with the nature of the end product. Other significant distinguishing features include the type of clients and the characteristics of the design projects that are specific to each design discipline. As is well known, each branch of design practice has its own particular development history, socio-economic and cultural contexts even though it may be influenced by other shared contextual factors from related disciplines. For example, the history of art and design generally influences a diverse range of art and design practices to varying degrees.

It will be realised from the brief outline above that there have been many changes in the TAFE sector, although the implications for design education are not that clear. What limited research has been undertaken into design education in the VET sector has focussed primarily on identifying the current technological changes in the workplace and their implications for design practice training. More recently, the focus has also been on identifying desirable generic employability skills and attributes that graduates would bring to their employers.

Another area where there has been some research has been to focus on developing innovative approaches to more student-centred learning and online pedagogies including the development of appropriate course content media presentation for education purposes. Such issues as the characteristics of the new ‘learning environment’ and interactivity, capacity to accurately simulate ‘real situations’; the roles and responsibilities in the learning process facilitation and
access to support from peers and teachers have been only explored and reported in general terms. More specifically, there has been little empirical research reported about design education teaching and learning practices in Australian TAFE institutions. The primary focus of researchers appears to have been mainly on the primary and secondary school sectors as well as university design education practices. Also important is the need to establish an understanding of the context and the strengths and weaknesses of TAFE design education practice before embarking on any significant change for improvement to ensure students, industry and community interests are appropriately addressed. Very little is known about the views and opinions of one of the key stakeholders, the design teachers in TAFE institutions, about what teachers see as positive and negative aspects or their ideas for making improvements. And this latter aspect deserves additional research.

It is reasonable to assume that the increasing rate of change resulting from technological and accompanying social developments reinforces the need for commitment to life-long learning pathways that will allow VET design graduates to maintain currency and relevance in their practice. The need for individuals to pursue and develop their motivating interests in order to reach their full potential for independent performance in their chosen vocations may require a more student-centred approach to teaching and learning as well as development of relevant core transferrable employability skills and attributes [5]. Again, there is little experimental evidence available to indicate in specific terms what the major stakeholders envisage to be required in the VET design education system. Logically, the VET system for design comprises five (5) major groups of stakeholders, namely: teachers (including course coordinators and managers), students, institutional managers, employers and, of course, the Australian community. Each of these groups may be viewed as an important system (or subsystem) in its own right with related opinions, needs and aspirations. In addition each of these subsystems would constitute significant research projects.

This thesis is based on an empirical investigation of the opinions, needs, aspirations and recommendations of the teaching stakeholders in the context of a design education system, with its attendant parameters and constituent variables. There are several important reasons for doing this. Without discounting the views of the other stakeholders, teachers do provide the essentials of the VET design education system and, moreover, what teachers do is
interdependent with the other groups of stakeholders. Teachers represent a fundamental interface between students, employers and the community. Most importantly, little has been published, on a first hand interview basis, about the views, needs, aspirations and recommendations of teachers in the context of formulating a possible model of the VET design education system which takes these important views into account. The context and scope of this investigation will now be outlined.

1.2 CONTEXT AND SCOPE
In context this research is focused primarily on the design teaching, learning and assessment practices associated with selected design courses offered by institutions that form the TAFE system in states and territories in Australia.

In scope, this research will investigate issues related to such parameters as: training needs identification; curriculum design; student and teacher attributes; teaching, learning and assessment strategies that are developed and applied in TAFE design education programs, as well as resulting graduates’ attributes. This study is concerned with capturing and expressing the existing views, aspirations and ideas for making improvements to design education in the TAFE sector. One of the important aspects of this study has been to try to holistically describe and model the identified important parameters, their constituent variables and relationships that characterise the design education TAFE system and its practices. In turn, this should lead to a better understanding for career building in design education leading to improvements in the quality of life and self-fulfilment of TAFE students. Understandably, more effective design graduates will be capable of contributing to the development of appropriate and responsible design solutions and services to enhance the competitiveness and viability of design enterprises in the context of a developing Australian economy in an environmentally responsible way.

The scope of the research reported in this thesis is based on the proposition that an investigation into design education in TAFE can be structured around system design principles in order to obtain a holistic model that describes the essential component parameters and associated variable subcomponents inherent in the design teaching and learning practices in TAFE systems. This study involves a number of participants from selected TAFE Institutes that provide design education from each state in Australia. The purpose of this undertaking is
to obtain empirical data about the design education system practices in TAFE. Participants have been selected from the ranks of casual and full time teachers, program coordinators, educational program managers and heads of school in order to share their experiences, perceptions and aspirations for change and improvement. The range of topics to be canvassed includes curriculum design, recruitment of student and staff, teaching and assessment strategies and methods as well as quality assurance practices linked to continuous improvement. These parameters and variables have been related to a model of the TAFE education system.

Analysis of the theses findings will be discussed in conjunction with current thinking in VET sector research generally mindful of the limited availability of specific studies and supporting experimental data about TAFE design education. Analysing TAFE design education practices using a systems approach has identified a more comprehensive range of parameters and related variables that need to be considered when constructing a model of design education in TAFE Institutions – it will be shown that this approach has the potential to improve understanding of the relationships, processes and practices linked to the development and delivery of design education programs to students in the VET sector. The thesis aims and research questions are tabled hereunder.

1.3 AIMS AND RESEARCH QUESTIONS
The overall goal of this research project is to apply a systems design approach to examine, model and achieve a better understanding of the TAFE design education system.

The aims of this thesis are:

1. To undertake a critical review of the literature covered by current research regarding practices related to Australian publically funded TAFE design education processes and outcomes.

2. From the analysis of the data in (1), to gain a better understanding of what investigations are required with respect to curriculum design, teaching, learning and assessment practices and other related issues. And to develop an understanding of the main parameters and variables describing the current TAFE design education system in Australia.
3. As informed by the results of (2) to develop a parametric model of the TAFE system and parameters including: curriculum design, teaching and learning, and assessment practices.

4. Mindful of the results in (2) and (3), to undertake an experimental program in order to obtain empirical data relevant to the parameters of a TAFE design education system. Further, to analyse these data and update the parametric system model noted in (3); and to summarise the findings in the light of the views and aspirations of the teacher stakeholders.

5. To summarise findings and conclusions for design education in the Australian TAFE system; and outline opportunities for further research.

In view of the above aims, this research will investigate, from the perspective of the TAFE design teachers, the following research questions in relation to TAFE design education using a pragmatic research methodology:

- What are the important structural parameters and constituent variables that need to be considered when developing an Australian TAFE design education system?
- What are the current understandings and related views and aspirations of the design teachers as stakeholders about the existing TAFE design education pedagogy and system practices?
- What are the critical issues and problems that need to be addressed to improve the TAFE design education system?
- What are the implications of the training and education environment reforms and changes impacting on the TAFE design education system?
- What have been some of the responses and outcomes arising from the impact of reforms in the TAFE sector?
- What further research might be relevant to highlighting ways to improve TAFE design education?
1.4 LAYOUT OF THE THESIS

The layout of this thesis is structured according to the aims and major phases in this research program. Following this introduction, (that sets out the aims, context and need for the particular research, including its scope), a critical review of the literature on the policies and reforms that have taken place in the Australian VET system, and are impacting on the TAFE design education as a subsystem within it, is presented in Chapter 2, Literature Survey and Task Clarification. The conceptual framework guiding the design and development of the theoretical parametric model of design education in the TAFE sector, the research methods and the experimental program is explained in Chapter 3, Theoretical Development, Research Methods and Experimental Program. In Chapter 4, Experimental Results and System Modelling, the final model of the TAFE Design Education System is presented as a context for the presentation and discussion of the results of qualitative data analysis of the views, concerns and aspirations of TAFE design teachers, and to demonstrate how the findings contributed to the development of the grounded theory that explains the model. The final Chapter 5, Findings and Conclusions, a summary of the findings, conclusions and recommendations for future research are given. The References are followed by the Appendices, in which the empirical data and other information relevant to this research are given in detail.
2. LITERATURE SURVEY AND TASK CLARIFICATION

2.1 PREAMBLE
In this chapter of the thesis, articles and papers of particular interest in the literature will be reviewed. The state of knowledge and major issues in the area of Australian VET reforms and their implementation, as well as the TAFE design education system practices and outcomes will be critically examined.

The chapter has been organised by grouping the literature surveyed into three areas. Firstly, a summary is given on the survey of the VET policies and their influence on the development of TAFE Institutes and the role they play in design education. This includes a review of relevant aspects arising from the implementation of the National Training Reform Agenda from the point of view of their influence on TAFE design education. This summary is followed by a review of literature related to design thinking and epistemology related to design theory and processes and their outcomes. Finally, this is followed by a critical examination of design education in the TAFE sector including the introduction of competency standards, and more recent developments arising from the introduction of Training Packages into TAFE design education. The findings of this literature have provided a foundation from which to begin to develop the theoretical and experimental work outlined in Chapters 3 and 4. This survey begins with the examination of VET policies and their influences on broad developments in the TAFE system.

2.2 VOCATIONAL EDUCATION AND TRAINING POLICIES

2.2.1 Policy influences on the development of TAFE’s identity and role
It is interesting to note that, since the 1970s, there have been a significant number of policy changes in VET. A defining moment for the Australian VET sector was the release of the Kangan Committee Report in 1974\(^8\) [6].

\(^8\) Kangan, M (Chair) 1975, *TAFE in Australia*, Australian Committee on Technical and Further Education (ACOTAFE), AGPS, Canberra
Commissioned by the Federal Government to look at the future of TAFE in Australia, the report laid the foundation for the creation of Australia’s national system of Technical and Further Education (TAFE). The report defined TAFE as an alternative sector of education that was neither inferior nor superior to the other sectors of education. This report also created a sense of mission and purpose for TAFE that caused people in TAFE to commit to it\(^9\) [7]. The report indicated two alternative directions that could be given to the role of technical colleges in assisting people to develop their potential as individuals within the context of job opportunities and employment\(^10\) [8] namely:

1. Workforce planning orientation, and
2. Educational and social orientation

The report favoured the second orientation, which was to be supported by an adequate funding model to provide general recurrent grant funding for curriculum research and development, counselling services and social work, libraries, occupational health and safety as well as social welfare benefits. Special funding was to be set-aside for disadvantaged groups, professional development needs of staff and the abolition of tuition fees. In 1974, the Labour Commonwealth Government committed capital and recurrent funding of $107.8 mil in support of Kangan’s recommendations.

A second TAFE report by Richardson\(^11\) [9] in 1975 reinforced the emphasis on the need to provide opportunities for learning throughout life for young and older adults to maintain skills and knowledge or to retrain for new/ different occupations as industry employment opportunities changed. It also advocated a broad approach to TAFE to meet community aspirations and needs. In 1975, the newly elected Fraser Liberal Government committed to increasing the capacity of TAFE to meet community needs by embarking on a major expansion of TAFE facilities, and initiated a major curriculum review of the quality of planning and content of TAFE courses\(^12\) [10]. VET under the national direction priorities

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\(^11\) Richardson, E., (1975), _TAFE in Australia: Second report on needs in technical and further education and training_, ACOTAFe, AGPS, Canberra
\(^12\) Goozee, G., (1993), _The development of TAFE in Australia: an historical perspective_, Adelaide, NCVER
benefitted the communities and adults who wanted to re-enter education or employment, as well as early school leavers. The influence of industries on VET decision-making was reduced, however. Rising youth unemployment caused a shift back towards labour market intervention and priorities again were swayed by labour market outcomes\textsuperscript{13} [11]. The Hawke Federal Labour government came to power in 1983 during an economic recession with associated hardships including very high unemployment, particularly youth unemployment. These conditions greatly influenced education and training policies during the early 1980’s.

A study, conducted by Meyer in 1983 into TAFE design education\textsuperscript{14} [12] for so called ‘non-professional’ designers, discovered many concerns that were expressed by the VET design teachers. Among these concerns was the growing level of industry influence on design education based on its understanding of design skills, the existing divisions between professional and non-professional design work within the industry, and the need to develop more appropriate pedagogies for teaching design students about creativity and innovation. TAFE institutes were increasingly given the task of workforce training and re-training to reduce unemployment when new economic opportunities made it possible and as the global economy re-started its growth cycle. By the late 1980’s TAFE was set for a major restructuring and transformation.

The Commonwealth Tertiary Education Committee (CTEC) review of TAFE in 1986 examined “the capacity of TAFE to underpin the education and training needs associated with economic development” (CTEC, 1986, p. iii). Out of this review, three objectives for TAFE were identified, namely:

1. Growth in student numbers
2. Improving opportunities for the disadvantaged
3. Fostering of cross-sectoral development

Each one of the above objectives presented growth opportunities for existing design courses in TAFE. For some time design courses were in high demand from school leavers, women


\textsuperscript{14} Meyer, P., (1983), \textit{Design skills for the workforce}, Hawthorne Institute of Education, Melbourne
who wanted to re-enter the workforce and ‘career-change’ working adults as designated disadvantaged groups. There were also cross-sectoral opportunities arising out of the fact that many design courses had historically grown out of the VET sector into the higher education sector. The CTEC review also highlighted the existing conflict between educational and employment priorities set in the Kangan Report. It identified the pressures resulting from the apparent narrow view of TAFE that was prevalent in the Department of Finance and Employment and Industrial Relations. This view was that TAFE’s role was mainly to cater to the labour market training needs in a supply and demand driven marketplace. This was quite contrary to the Kangan Report recommendations and traditional education values of TAFE institutions. The review also set two areas of priority for the VET sector:

1. Short-term perspective outcomes in job-specific training for immediate skills requirements and employment.
2. The longer-term, more holistic and transferable outcomes that would require changes to the system and attitudes of employers and employees. These emphasised adaptive skills that would reduce the need for retraining and result in better employability of various TAFE graduates through integrated provision of general education in areas of communication, numeracy and computer office skills.

By the late 1980’s, Australia was again in the grip of recession and growing unemployment even though employers were complaining about skills shortages (Anderson, 1997). This period also coincided with major structural changes in industry and the growing adoption of information and communication technology (ICT) and computerised systems in production, commerce and administrative office work resulting in a high demand for ICT skills. The public funding model for VET was re-examined and reforms tending towards a deregulated training model, with more emphasis on meeting immediate industry needs, was favoured.
2.2.2 Towards a National Training Reform Agenda

In 1988, the Federal Government outlined the implications of award restructuring for education and training in the “A Changing Workforce” paper\textsuperscript{15} [13]. Mirroring changes in the UK, the paper proposed a competency-based approach to industry training together with greater emphasis on training provision by industry through on-the-job training. This proposal was agreed to by the State Education Ministers at a conference in 1989 and the National Training Board (NTB) was established in 1990 to develop and endorse national industry competency standards through a consultation process with the newly established Industry Training Advisory Boards (ITAB), (Goozee, 1993).

The pace of training reform accelerated during the early 1990’s. In 1990, the Ministers of Vocational Education, Employment and Training (MOVEET) established the Australian Committee for Training Curriculum (ACTRAC). Its role was to develop national core curriculum projects, (Australian Council of Trade Unions, (ACTU) 1993), and to create a national training market for vocational education and training similar to the UK model. ACTRAC also created the nationally shared VET culture and value system, to be adopted by the various state VET systems, by establishing standards for curriculum development through protocols of language, documentation formats and procedures. The detailed curriculum content and accreditation remained the responsibility of State or Territory departments.

With respect to the area of design education in TAFE, this resulted in a rise of diverse approaches to curriculum development, due to the availability of funding for curriculum development, and informed by the evaluation of existing curricula from other sources for the purposes of elaboration to introduce improvements. A number of national discipline related networks of professional educators was established. These networks contributed to the resulting coherence of representative national cultural values of the design industries in Australia while also recognising the local/ regional needs\textsuperscript{16} [3].

\textsuperscript{15} Commonwealth of Australia (COA), (1988), A changing workforce, AGPS, Canberra
In 1990, the Finn Review\(^{17}\) [14] analysed participation of students in post-compulsory education, and recommended a more collaborative and integrated education and training system to establish learning continuum pathways beyond compulsory schooling through entry level training and further lifelong learning to sustain employability. The report also recommended the development of core-employment related competencies and targets for youth participation\(^{18}\) [15]. The major difference in approach to that taken in the UK was that, in Australia, compulsory schooling was included to develop key employment skills. In 1991, the development of key employment related competencies was endorsed by a meeting of MOVEET/ AIEC (ACTU 1993).

The following key competencies were described by Mayer\(^{19}\) [16] in his report of 1992:

- Collecting, analysing and organising information
- Communicating ideas and information
- Planning and organising information: working with others in teams
- Using mathematical ideas and techniques
- Solving problems and
- Using technology

In the context of design curriculum development, these were seen as essential and integral attributes of designers and their practice. If the design curriculum outcomes were intended to develop more than practical technical competence, then each of the above key competencies had to be addressed within the structure of learning (Jackson and Doyle, 1996). There were similarities between the Mayer key competencies and the compulsory core skills common in Britain at all levels of the General National Vocational Qualifications (GNVQ’s). However,

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\(^{17}\) Finn Review Committee was chaired by Brian Finn and produced a final report in 1991 titled *Young People’s Participation in Post-compulsory Education and Training*. The report identified six areas of employment related learning to be achieved after compulsory schooling. These key areas of competence were called *communication; mathematics; scientific and technological understanding; cultural understanding; problem solving and personal and interpersonal characteristics*.

\(^{18}\) ACTU, (1993), *Australian Council of Trade Unions submission to the Industrial Relations Commission, The National Training Reform Agenda*, (in the matter of the ATU and the ACT Minister for Education and Training and others: C. nos. 32552/92)

\(^{19}\) Mayer Report Committee was chaired by Eric Mayer and worked on developing key competencies. The 1992 report *Putting General Education to Work: The key Competencies Report* proposed seven key competencies and adopted a comprehensive definition of competence that recognised that “*performance is underpinned not only by skill but also by knowledge and understanding, and that competence involves both the ability to perform in a given context and the capacity to transfer knowledge and skills to new tasks and situations*” (Mayer, 1992, 4)
Unlike in Britain, the Mayer Key Competencies were also established across the full spectrum of compulsory education including primary, secondary and vocational education and training.

The Mayer report stressed the cross-disciplinary and transferable nature of the key competencies, and that their importance varied according to different discipline contexts. It also advocated formal assessment and reporting of student’s achievement of these key competencies. This resulted in their incorporation into curriculum frameworks, particularly in the general education areas, and to a lesser extent in VET. In the VET context, these were regarded and treated as implied rather than explicit outcomes and were not formally assessed or reported against. This is distinctly different from the British practice where key competencies were less emphasised in general education but regarded as significant formal components of the GNVQ’s. As a result, in Britain the key competencies have the status of a separate discipline that is linked to and underpins the other disciplines and has created more complex expectations of achievement than in the Australian VET context.

In 1992, the Carmichael Report20 [17] and its recommendations were endorsed by MOVEET. This report reflected the earlier identified need in Britain for establishing in Australia a National Framework for the Recognition of Training (NFROT) together with associated principles to promote recognition of prior learning, course accreditation standards and principles, registration of training providers and assessment of competencies (ACTU 1993). The States agreed to the formation of the Australian National Training Authority (ANTA) in 1992 following the Prime Minister’s ‘One Nation’ statement, which offered full Commonwealth funding for TAFE. The Authority brought together Industry, the Commonwealth and the States to run a national TAFE system and to coordinate national priorities in VET. By the end of 1994, the functions of the National Training Board and the Australian Committee for Training Curriculum (ACTRAC) had been absorbed by ANTA to facilitate its planning and coordinating role.

In spite of some differences in the approaches in Britain and Australia, there is an underlying similarity as both countries searched for responses to the common vocational training and

20 Carmichael, L., (1992), The Australian vocational certificate training system, Employment and Skills Formation Council
education issues. Reforms in Britain reflected the comments of Muthesius made in the early 20th century that “English pragmatism” was a philosophical basis that greatly influenced British life not only in Britain but also in the former colonies (Julier, 1993). This pragmatism is clearly evident as the driving force behind education reforms from the start of conservative Thatcherism in England, and is reflected by the emergence of neo-pragmatism21 [20].

Australia not only adopted the British reforms but also the underpinning philosophies. This was demonstrated in the 1994 policy document “Working Nation, Policies and Programs” that outlined the objectives for VET in the context of establishing a favourable environment for economic growth and economic rationalism22 [19].

TAFE, as an entity, had often been seen as a labour market adjustment tool used by governments to control the influx of new employees into the labour force by varying the extent of funding for TAFE, and by creating incentives or reducing the level of training provided to meet short-term priorities. Australian TAFE systems still exist as State government agencies funded on an annual basis. The fluctuations in funding levels from year to year have focused TAFE’s attention on how to cope rather than questioning the appropriateness of government funding actions and their implications.

This state of affairs resulted in the following implications for design education in the VET sector as described by Roantree23 [3]:

1. Design education in VET would only remain viable as a field of study if it was seen to fit in and comply with the current standardisation philosophy and associated constraints arising out of the move towards nationally uniform competency standards. This is contrary to the usually accepted design philosophy whose aim is to create new value systems and to encourage creativity, planning and innovation by active evaluation of assumptions, challenging conventions, overturning dogma and pushing the boundaries of imagination. This conflict of philosophies had to be resolved in order

21 Neo-pragmatism is a philosophical movement that subscribes to a radical form of social and practical contextualism that rejects universal conceptions of truth or reality. Neo-pragmatism emerged as the critical reaction to traditional and analytic philosophy. Truth and meaning are viewed as no more than instances of specific social practices as a result of the failure of making philosophical distinctions between concepts of analytical-empirical; necessary-contingent; universal-historical and reality-fiction (Honderich, 1995, p. 614).

22 COA, (1994), Working Nation, Policies and Programs, AGPS, Canberra

to allow design as a field of study to meet the needs of design students in the VET sector. Examples of the demise of reputable, influential and innovative design schools in the face of such conflict include Gropius’ Bauhaus, Moholy-Nagy’s New Bauhaus: American School of Design and the Ulm College of Design.

2. Roantree suggested that there were three alternative attitudes that could be adopted by the design fraternity in VET in the face of the inability to change the current direction TAFE was heading in:
   a) Acceptance of its future as a modified clone of the VET competency-training paradigm and the compromised outcomes for its graduates.
   b) Recognition that the change is inevitable and that survival in the face of it was more important, and therefore adopting a neo-pragmatic response, to ride out the change as well as possible while waiting for further more favourable reform changes.
   c) Develop an acceptable alternative to the dominant paradigm that would satisfy the powerbrokers and stakeholders. [3]

For example, in the case of the Canberra Institute of Technology (CIT), School of Applied Arts and Design, as it was known at the time, the third option was seen as the most desirable one. The approach developed and practiced by the fashion design teachers neither compromised the creativity of the design outcomes nor the compliance with the required VET competency standards. This practice was gradually adapted and contextualised by the other design study discipline areas in what became the CIT Faculty of Design, now known as the Creative Industries Centre, during curriculum reviews – graphic design, multimedia, photography, animation, building and interior design.

Building on the previous policy document, ‘A bridge to the future-Australia’s National Strategy for vocational education and training 1998-2003’ [20], ANTA commissioned Phillip Curran [21] to obtain information from VET stakeholders about future directions and priorities in response to the rapid changes taking place in Australia. The most identified issues

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were related to changes in industry employment methods, technology development and applications and flowing from them more complex patterns of education, training, social life and leisure. According to Curran [21], some of the interdependent aspects of the transitions taking place included:

- Long-term growth in knowledge based economy and service sector as knowledge, innovation and the capacity to develop and adapt new technologies became more significant drivers of economic growth throughout Australia.

- Increasing skills development needs to cater to new emerging industries in information and communication technology, creativity, problem solving and critical thinking across all industry sectors.

- Unforeseeable scope of the potential and pace of technological developments and their impacts on industries, education and living styles creating a need for rapid and responsive systems in industry and in education and training to be able to take advantage of the new opportunities.

- A major shift from the traditional linear pattern of education leading to employment in fulltime work and then retirement to non-linear pathways consisting of a variety of combinations of education, training, full-time and part-time work as well as other self-actuating activities through life.

- Much more frequent and numerous career changes for individual sometimes by choice or out of necessity dictated by industry sector changes as occupations are transformed in the workplace – increased casualisation, outsourcing of services, short-term contract employment, multiple job holding and self-employment.

- Rise in small and micro businesses that operate flexibly in niche markets.

- Aging workforce and emerging skill shortages particularly in lower skills industries and traditional trade areas.

- Generational change to the attitudes brought about by younger more independent people who are less risk averse and less concerned about career security because of their confidence in their ability to gain skills and employment as needed – (although there is also a strong possibility that there
are others who are less confident and could become marginalised in society due to poor literacy and lack of engagement in education and training).

While there was consensus that these changes were fundamental, it was pointed out that those changes impacted and expressed themselves in different ways in regional areas and across different groups in society. It was suggested that during the transition into the higher skill/higher wage part of employment there was going to be an increase in the number of students who are working while studying to retrain and increase/update their skills levels. Because of the regional difference in the way the changes would impact there was a need to develop customised local approaches that would suit the particular needs of each region or community while still meeting the requirements of nationally endorsed vocational education and training frameworks and policies. The related views of teacher stakeholders, however, do not appear to have been well documented.

In November 2003 ANTA published *Shaping our future - Australia’s National Strategy for vocational education and training 2004-2010* \(^{26}\) [22] which outlined four objectives, twelve strategies and related key performance measures for the VET sector to carry through until 2010. These were organised under the headings:

- Servicing – the needs of businesses, individuals and communities flexibly and inclusively.
- Building – the capability and capacity of public and private Registered Training Organisations.
- Improving – the quality, accessibility, responsiveness and reliability of vocational education and training across Australia.

The ANTA publication [22] recognised that much had been achieved by VET in the years leading up to 2004, however, there were still outstanding training needs that had to be addressed, such as increasing skills shortages, particularly in the traditional trade areas; increasing employment in higher skilled white collar jobs related to legal, accounting, financial, marketing, property and business services and emerging strong growth in

community services, leisure and creative industries. ANTA in the paper noted above suggested that TAFE design education was increasingly being challenged by:

- The unforeseen scope of relatively rapid technological developments leading to significant impacts on current design industry practices, and the establishment of emerging new design industries, lifestyles and education opportunities.
- The change from linear to non-linear patterns in education in response to more frequent and radical career changes initiated by individuals or caused by industry sector changes as workplace occupations changed – leading to less secure employment, increased casualisation, multiple skilling and job holding, and self-employment.
- The rise of flexible, niche market, small and micro businesses providing design services.
- Aging teacher workforce and emerging skills shortages related to new computer based tool applications in the respective design areas.
- The generational attitude change adopted by students towards fulltime employment and risk of unemployment resulting from their confidence in being able to gain the required employment skills as the need and opportunity arises.

Manufacturing, construction, agriculture and mining were expected to experience some falls in employment as the demand for skills to create, organise and apply knowledge accelerated. Other needs included improved access, participation and outcomes for students, particularly equity groups; an enhanced role for recognition of prior learning as a pathway to accelerate training towards gaining qualifications and providing better pathways between the education sectors, particularly between VET and the universities to promote lifelong learning.

A series of working papers were published by the Australian Centre for Organisational Vocational and Adult Learning (OVAL) that canvassed issues related to the need for changes to VET pedagogy as a result of the changes that were taking place in Australian workplaces in the context of globalisation. Chappell\(^\text{27}\)\(^\text{[23]}\) has synthesised the ideas presented in these working papers and has suggested that there were significant changes in industry, the labour market, work and work organisation that included a growing trend towards self-employment,

contract employment and casual rather than permanent employment to facilitate greater flexibility when responding to changing economic circumstances. As a result, VET teaching and learning practices needed to become more learner-centred, work-centred and attribute focussed. He suggested that the emerging guiding principle of pedagogical practice was ‘constructive alignment’ – that is, the ‘appropriateness of particular pedagogical strategies to the different purposes and settings in which contemporary vocational, workplace and organisational learning takes place’. However, whilst recommending a suite of learning strategies, including constructivism-based methods, no experimental evidence was presented to support this proposal.

In July 2003, the Victorian Office of Training and Tertiary Education (OTTE) published the Have Your Say Project Report: a forum for teachers views on issues related to teaching and learning in TAFE\(^{28}\) [24]. This report sought information from Victorian TAFE teachers on such issues as: teaching and learning in TAFE generally; the changing role and identity of the TAFE teaching profession; the skills required of teachers in the contemporary TAFE workforce and the challenges ahead that need to be met by TAFE due to increasing commercialisation and competition from private competitors while the economy becomes more knowledge-based. The previous substantial study of teachers’ views about these matters was conducted in 1992 and the main issues then were related to the introduction of competency based training and assessment, implementation of self-management in the TAFE Institutes and professional development to deliver fee-for-service training services and products\(^{29}\) [25]. Although teachers were generally expressing positive comments about teaching in TAFE, and the dynamic and flexible character of TAFE that encourages teamwork and enables teachers to make significant contributions to learning, there were also some criticisms. Teachers listed three main factors that had a negative impact on the quality of teaching and learning in TAFE, namely:

1. Limited access to teaching facilities, resources, equipment, materials and current specialist industrial equipment.

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\(^{29}\) Chant Link & Associates, (1992), A report into the perceptions of TAFE teachers with respect to their current and future roles, Hawthorn
2. Declining educational outcomes since the introduction of training packages and competency base training and fee paying students, and increasing reliance on sessional teachers

3. Increasing scope of non-teaching duties linked to administration, budgeting and fund raising through grant applications, marketing, reduction in student support services, decline in required teacher qualifications and loss of professional standing with respect to teachers in other sectors

The teachers also prioritised a wide range of suggestions for improvement in the TAFE system to address their concerns mainly to do with conditions of employment and job security, succession planning, professional development, funding and resources for teaching, developing links with industry, scope of non-teaching duties and student related matters.

There does not appear to be any view expressed by teachers in particular relation to design education in TAFE in this study, and therefore, this needs to be investigated.

2.2.3 Greater focus on generic skills

Since the workplace reforms introduced by the Labor governments in the 1980’s, and increased emphasis on global economics for Australian industries to remain competitive, they reportedly needed to improve work practices. The requisite, underpinning knowledge and understandings were integrated into the new Training Packages in the form of Mayer key competencies, as they related to workplace requirements. These generic skills were seen as essential for effective participation in work as they focus on the ability to apply knowledge and skills in work situations. In 1998 the Organisation for Economic Co-operation and Development (OECD) issued a report titled ‘Transition from initial education to working life’, that examined the provision of vocational education and training against eight key features. One of these features was ‘provision of a broad range of general and vocational skills’ and the report showed that Australia was not performing well against this criterion.

In late 1999, ANTA published a status report (McDonald et al. 1999), which noted the importance of the generic skills in education and training. It also highlighted the concern that the importance of underpinning knowledge, generic competencies and work-readiness were
not adequately reinforced in the training packages, and in the teaching and learning practices to ensure that graduates have well developed generic skills.

This lead to research by Dawe\textsuperscript{30} \cite{Dawe2002} to investigate the ways the Mayer competencies were included and attained through the implementation of training package based programs.

The reported key findings were that there was evidence to support the conclusion that training packages were achieving generic skills, and some good teaching and learning practices were identified. However, interviews with teachers indicated that teachers and trainers were confused by the performance level indicators used in conjunction with the Mayer key competencies, or in some cases they were ignored. There were several implications for VET practitioners, namely:

1. Training package developers needed to know the importance of generic skills including industrial relations, personal attributes, values and work ethics.
2. Adequate professional development was required to ensure teachers used appropriate methods for the delivery and assessment of generic skills.
3. There was a need to research the effectiveness of the performance levels used with the Mayer key competencies, and
4. Assessment guidelines should be examined to ensure that they included directions for assessment of personal attributes, values, attitudes and work ethics to obtain valid assessment results.

The last point was a particularly sensitive issue and many practitioners objected to doing this because of perceived subjectivity in making such assessments within the very broad range of industry settings and contexts, and there was much debating about how generic skills development was being addressed in the VET education sector.

A second related report prepared by Callan\textsuperscript{31} \cite{Callan2003} was published by the National Centre for Vocational Education Research (NCVER) in 2003. The main findings of this report were that there was little consensus among teachers upon a definition of generic skills and there was only about 40\% recognition of terms like ‘Mayer competencies’, ‘soft skills’ and ‘hard skills’. Some 75\% of students surveyed were aware of the terms ‘key competencies’ and

\textsuperscript{30} Dawe, S., (2002), \textit{Focussing on generic skills in training packages}, NCVER, ANTA, Australian Government
\textsuperscript{31} Callan, V.J., (2003), \textit{Generic Skill: understanding vocational education and training teacher and student attitudes}, NCVER, ANTA, Australian Government
employability skills’ and mentioned good communication and team skills, ability to work with others as examples. Although the vast majority of teachers believed that they emphasised the importance of generic skills to students, 80% also believed that students were more focussed on gaining the technical skills directly related to the industry sector rather than learning the generic skills. Students also indicated that they wanted to learn the broader skills that would allow them to change jobs more easily. However, more than 50% said that they wanted to learn only the industry job relevant skills, thus confirming the teachers’ opinion that students were more focussed on the technical skills and did not appreciate the value of generic skills.

Teachers said that employers wanted graduates with transferrable work skills, team and good interpersonal skills, but that there was dissatisfaction with the level of these skills and job attitudes as demonstrated by recent graduates. This was in spite of a general agreement among teachers and students that the skills employers most valued were ability to read, spell, write well, solve problems, collect and analyse information, use information technology, speak and communicate effectively with other people in teams.

There was also a notable degree of agreement that the generic skills that were generally well taught included problem solving, collection and analysis of information, speaking and communicating with others, team work, planning and organising. There was also wide agreement that the attributes that were taught well included self-confidence, being motivated and having a practical focus. The agreed generic skills that needed to be improved were reading, spelling and writing, using mathematical concepts, communication with other from other cultures, building and managing a team, conflict resolution, capacity to change, dealing with incomplete information and challenging how things are done. Given the above diversity of views and criticism, it appears timely to investigate the opinions of design education teachers.

In the context of design education, those generic skills are widely accepted as an essential set of underpinning skills that students are expected to apply during the design process to inform
design problem solving and decision making\textsuperscript{32} [28]. However, no empirical studies appear to have been reported in the literature.

Following a major review in 2002 by the Australian Chamber of Commerce and Business Council Australia, a new Employability Skills Framework\textsuperscript{33} [29] was developed and adopted nationally. The table below shows a comparison between the new Employability Skills Framework and the Mayer key competencies.

Table 2.1.3.1: Summary of ACCI–BCA [ibid] Employability Skills compared with Mayer Key Competencies\textsuperscript{34} [30]

<table>
<thead>
<tr>
<th>Employability skills</th>
<th>Key Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication skills</td>
<td>that contribute to productive and harmonious relations between employees and customers</td>
</tr>
<tr>
<td>Team work skills</td>
<td>that contribute to productive working relationships and outcomes</td>
</tr>
<tr>
<td>Problem-solving skills</td>
<td>that contribute to productive outcomes</td>
</tr>
<tr>
<td>Initiative and enterprise skills</td>
<td>that contribute to innovative outcomes</td>
</tr>
<tr>
<td>Planning and organising skills</td>
<td>that contribute to long-term and short-term strategic planning</td>
</tr>
<tr>
<td>Self-management skills</td>
<td>that contribute to employee satisfaction and growth</td>
</tr>
<tr>
<td>Learning skills</td>
<td>that contribute to ongoing improvement and expansion in employee and company operations and outcomes</td>
</tr>
<tr>
<td>Technology skills</td>
<td>that contribute to effective execution of tasks</td>
</tr>
<tr>
<td>Personal attributes</td>
<td>Motivation</td>
</tr>
<tr>
<td>Loyalty</td>
<td>Personal presentation</td>
</tr>
<tr>
<td>Commitment</td>
<td>Commonsense</td>
</tr>
<tr>
<td>Honesty and integrity</td>
<td>Positive self-esteem</td>
</tr>
<tr>
<td>Enthusiasm</td>
<td>Sense of humour</td>
</tr>
<tr>
<td>Reliability</td>
<td>Ability to deal with pressure</td>
</tr>
<tr>
<td>Balanced attitude to work and home life</td>
<td>Adaptability</td>
</tr>
</tbody>
</table>

Note: ACCI = Australian Chamber of Commerce and Industry  
BCA = Business Council of Australia

\textsuperscript{32} Bonollo, E., and Lewis, W. P., (1996), *The industrial design profession and models of the design process*, Design & Education, vol6, no 2, Design Education Council of Australia (DECA), Australia

\textsuperscript{33} The Employability Skills for the Future Reference Group, (2002), *Employability Skills for the Future*, Australian Chamber of Commerce (ACC) and Business Council of Australia (BCA), Department of Education Science and Training (DEST), Canberra

\textsuperscript{34} Gibb, J. editor, (2004), *Generic skills in vocational education and training – research readings*, NCVER, ANTA, Australian Government
The introduction of the Employability Skills Framework over time has contributed to a greater emphasis being placed on the importance of generic skills and on the need to make the teaching, learning and assessment of these skills more explicit. At the time of commencement of this research thesis, there was a lack of clarity about the manner in which the Employability Skills Framework would be implemented across the VET sector, and whether these generic skills and attributes were required to be assessed. In particular, there still appears to be some not fully resolved issues about how these generic skills can be developed and assessed in the context of design education in the VET sector. Hence, further research is urgently needed.

2.3 DESIGN THINKING AND EPISTEMOLOGY

2.3.1 Theory of Design

In the context of teaching and learning, theory of design may be viewed as a rational and methodical ordering of principles, rules, and strategies for learning and other factors relevant to the particular field of design practice. Bonollo and Lewis\textsuperscript{35} [31] have proposed that this theory can inform design knowledge, and support the development and evaluation of relevant educational methods for a range of design professions. This theory can also help to explain and guide neo-professional practice described by Schön\textsuperscript{36} [32]. Studies conducted in the field of design research over the last two decades [ref 12-17] have attempted to explain design theory in more detail. These studies include research on how designers think, how they comprehend knowledge and how this informs their design process. In other words various researchers have tried to understand “what designers do and how they do it?” To develop design learning methods it is necessary to at least consider the question above and keep in mind the possibility of the existence of alternative methods.

Crotty\textsuperscript{37} [33] has described epistemology as a way of explaining how people know what they know in particular fields of knowledge and practice contexts. Trying to comprehend what designers know and do when they engage in the design process constitutes the epistemology

\textsuperscript{35} Bonollo L. and Lewis W. P., (1996), \textit{Design in Australian industry and education; the management of design in industrial design projects}, Proceedings Annual Conference, Australian Council of Art and Design Schools (ACUADS), Canberra School of Arts, Australian National University (ANU)
\textsuperscript{36} Schön D, (1983), \textit{The Reflective Practitioner, how professionals think in action}, USA, Harper Collins, Basic Books
\textsuperscript{37} Crotty, M., (1998), \textit{the foundations of social research; meaning and perspective in the research process}, Allen Unwin, Australia
associated with design practice. It is important to know how designers think because this knowledge may be useful when developing or improving design teaching and learning methods to enhance the capabilities of would-be designers. In general, Rogers\textsuperscript{38} [34] proposed a change towards educational methods that developed learning environments that valued students and assisted them to take responsibility for their own learning. This notion underpins the self-directed, problem-based learning approach commonly used to teach design in studio settings in the higher education sector. This approach also applies in design education in the VET sector, although it may vary for different disciplines, for example, in cases where there is a strong crafts and manual skills orientation\textsuperscript{39} [35].

According to Crotty [36], in response to Rogers’ approach, there has been a general shift in education from the scientific method or positivist epistemology of academic instruction where truth and meaning are often assumed to exist in the object, to an epistemology that suggests that people construct meaning as they explore the world they are trying to understand or interpret. This reasoning often applies in design and it implies that ‘meaning’ in the case of designers usually emerges as the object is being designed – not necessarily discovered but constructed perceptively as the design of an object shows itself out of the mind of the designer in the form of two-dimensional drawings or three-dimensional models or both\textsuperscript{40} [36]. Linked to this, studies by Schön\textsuperscript{41} [32] indicate that the main teaching and learning activities in an architectural studio are consistent with reflective practice: a circumstance where students are thinking about what they are designing while actually engaging in the design process. It could be reasonably suggested that similar reflective practice circumstances occur in other design fields, although further research may be needed to confirm the application of this theory in other contexts.

What is significant out of the discussion of how meaning is perceived in design? It shows that reflective practice is aligned with the notion of an epistemology for design in which meaning is constructed over time in the designer’s mind during engagement with the design process.

\textsuperscript{38} Rogers C R, (1979), \textit{Freedom to Learn}, Trade Division, Charles E Merrill Publishing Company
\textsuperscript{39} Boud, D. J., (1986), \textit{Implementing student assessment – higher education}, Research and Development Society of Australia, Sydney
\textsuperscript{40} Bonollo E. (2010), \textit{Product Design, a Course in first principles}, LB Publications, Canberra
\textsuperscript{41} ibid
In TAFE design education, reflective design practice or meaning construction was generally not well known even though problem-based or project-based learning formed the core of design teaching and learning. In the period leading up to the mid 1990’s the focus of design education in TAFE was, as with other disciplines, mainly on the pragmatic aspects of technical skilling to solve predominantly technical problems associated with the design product’s realisation through construction or manufacturing processes. Considerations of creative problem solving, design thinking and processes linked to methods for conceptual and aesthetic development have played a secondary role in TAFE design education.

Different designers construct meaning in varying ways even when they respond to the same design problem or event. The evidence for this is indicated by the individual problem-solving styles of designers, and the various solutions that are generated in professional design practice. Bonollo and Lewis suggest that these solutions seem to be the result of implied mental constructs and imagery whose qualities are not easily described because they are internalised within the individual’s mind during the design thinking processes. This partly explains why it is very difficult to teach someone strictly “how to design” using a formula approach to conceptualising a specific design solution to a design problem. Each individual is likely to construct meaning in ways that are dependent on their personal knowledge and experience in relation to the design problem. However, in spite of this, it is possible to develop learning conditions and strategies that assist with the development of problem-solving skills and knowledge experientially.

The above reflective epistemology is more typical of western learning where there is a focus on the qualities of the product itself, independent of its relationship to cultural, ecological and environmental values and impacts. However, Nisbett in his book *Geography of Thought*, points out that the perception of objects can be different in Asian and other cultures. Designers and design educators need to take the implications of this into consideration when developing products or designing learning methods for those non-western settings.

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42 Bonollo E. and Lewis, W. P., (1996), *Design in Australian industry and education; the management of design in industrial design projects*, proceedings Annual Conference, Australian Council of Art and Design Education (ACUADS): Canberra School of Art, Australian National University

Middleton\textsuperscript{44} [38] conducted a study based on verbal and concurrent visual data collection to investigate the nature of architectural expertise that involved architects with varying lengths of experience – from one year to thirty-eight years. The study suggested some cautious conclusions about the nature of architectural design and design expertise generally, described features of the transition from novice to design expert and the suitability of the research method for design research. The study showed that as designers become more expert, their design knowledge becomes more ‘highly chunked’ in keeping with the current theory about expertise. However, in design the integrated domain knowledge exists in the form of mental static and dynamic visual images. These images are easily accessible for application in design problem solving activities to initially identify and clarify the nature of the problems and then quickly generate more efficiently substantially resolved ‘holistic’ solutions.

Further, Middleton describes the key features of the transition from novice to expert where initially novices rely on a store of learnt problem solving procedures to break down into smaller parts, and on small chunks of fragmented design knowledge that seem to be missing the clues for linking the knowledge into larger integrated chunks. With experience, the size of the design knowledge chunks increases with the growing awareness of the relevant linking relationships between different aspects and dimension of the knowledge develops.

\subsection*{2.3.2 Design process models}

Another important area to be considered in the epistemology of design is linked to the design process. Modelling the process can help to clarify the cognitive and social nature of the associated design tasks, and to explain how to effectively manage the process when learning how to design.

Various models of the design process have been proposed in the literature but the following may be taken as typical. The types of tasks associated with the main phases of the design process as described by Lewis and Bonollo [34] are as follows:

1. \textit{Briefing and task clarification} (\textbf{TC} – task clarification in consultation with the client and other stakeholders)

\textsuperscript{44} Middleton H.E., (2004), \textit{Design thinking: a story in two parts}, Design and Education, vol 10, no 1, DECA (Design and Education Council of Australia)
Mainly analytical tasks aimed at identifying and defining the nature of the design problem that include searching for information, data collection and analysis, planning and scheduling of project tasks, surveys of clients and end-users to establish needs, design brief development and setting out preliminary cost estimates and timeframes as appropriate. Output: Design brief with specifications; project plan with duration and cost estimates; market/client and end user need analysis.

2. Design concept or ideas generation (CG – concept generation)
Creative and divergent tasks aimed at synthesising a wide range of potential solutions to the design problem described in the brief. At this stage all concepts are considered to have equal merit irrespective of the materials and technologies required to implement the concepts. Output: A folio of concept drawings and simple supporting models, plain prototypes representing the design ideas for discussion with the client.

3. Evaluation and refinement of ideas (ER – evaluation and refinement)
Convergent, analytical and creative tasks in which the initial concepts in (2) are critically evaluated against specific design criteria and distilled to a smaller number of alternative solutions for consideration and selection by the client prior to approval for further design development. Output: A folio of alternative refined design proposals with relevant technical information suitably presented to assist with the selection of the preferred potential solution.

4. Detailed design of the preferred concept (DD – detailed design)
Analytical and synthesising tasks in which the selected preferred concept and its integral components are tested, refined, validated, detailed and specified in project documents such as layout and technical drawings, calculations/ detailed cost estimates, materials, tolerances and finishes specifications, bill of quantities. Output: A folio of layout and detail drawings together with a technical report outlining performance data, specifications and preliminary manufacturing information.

5. Presentation or communication of results (CR – communication of results)
A set of tasks aimed at producing a suitable presentation mode to communicate to the client the proposed solution to the design brief using two and three-dimensional media such as drawings and models, digital photographs, models, videos, perspective illustrations and renderings. Output: A presentation folio that includes a range of media-based technical drawings from (4), together with a detailed prototype model and project report for client’s consideration and approval.
The design process phases described above are not necessarily sequential as some occur simultaneously in parallel or are repeated a number of times as the process is interactive and iterative as much to-and-fro thinking takes place during the problem solving and design decision making phases and, as noted above, meaning construction takes place as designers generate solution concepts. The problem solving style of the designer also influences how the design process is implemented – some prefer to quickly focus on generating concepts while others choose to spend more time clarifying the design problem. However, the overriding imperative is that progress is made to move through all the phases from (1) to (5) and complete the design process within a reasonable timeframe to meet the client’s requirements. The output of the whole process is essentially a firm concept solution proposal, or a proposition or hypothesis for a design product developed by applying thinking and reasoning processes of abduction\textsuperscript{45} [39]. This cognitive process is believed to occur in a complimentary manner to the processes of induction where general inferences are formed from some specific cases, and deduction where particular inferences or conclusions are drawn from some general cases. The idea of a design representing a proposition or hypothesis is appropriate in the learning context as the design is usually still unrealised as a real manufactured object and untested by the consumer.

A further study by Bonollo and Lewis\textsuperscript{46} [28] demonstrated how the model of the design process and relevant operational criteria for assessing the achievements of the process goals could provide a new theoretical framework related to a taxonomy classification for:

- Investigating design education courses in the context of industrial design with possible broader applications in other fields.
- Formulating educational objectives and corresponding educational strategies to meet design industry expectations.
- Application on other design related fields with comparable project-based content.


\textsuperscript{46} Bonollo E. and Lewis P., (1996), \textit{The industrial design profession and models of the design process}, Design and Education, vol 6, no 2, DECA (Design and Education Council of Australia)
Establishing a method for ensuring that academic performance of design students is compatible with industry expectations and resulting in better mutual understandings between the design professions, academic institutions and practitioners.

Bonollo and Lewis went on to conduct a study that described five dimensions of designer behaviour to communicate the objectives of design education for design practices in terms of students’ demonstrated ability to apply knowledge, skills and attributes that reflect these dimensions\textsuperscript{47} [40].

In the context of design education in TAFE, students are usually engaged in the five phases of the design process to various degrees by doing projects that often simulate real industry based projects and sometimes are real projects in that they are provided by external clients. In the simulation situation, the teacher often plays the role of the client. Although briefing and task clarification tasks are usually undertaken well, during the second and third phases students would usually seek out model solutions and try to adapt them to the brief rather than generating and refining their own concepts for solutions to the design problem. The main aim for doing the projects as part of the learning experience is to teach and develop the practical problem solving, detailed technical documentation and presentation skills to convey the essential information necessary for the project realisation phase. Depending on the design discipline, the scope to engage students in prototype project realisation varies considerably from limited scope, except for model making in the case of product, building and interior design, including furniture design to quite a substantial scope in the case of photography, graphic, multimedia and animation, fashion and jewellery design.

In the context of product manufacturing, the design process at phase (5) is usually preceded by a product planning phase followed by a major product development phase, all in accordance with a project management plan\textsuperscript{48} [36]. Consumer needs, trends and marketing opportunities are researched, identified and evaluated during the product planning phase. Here also the opportunities for creative innovation are recognised and explored after the underpinning

\textsuperscript{47} Lewis P. and Bonollo E., (2002), \textit{An analysis of professional skills in design: implications for education and research}, Elsevier Science Ltd.

problem finding activities are completed. The product development phase, often involving engineering design and production engineering includes such activities as prototype testing by conducting usability and user-centred studies that often begin in phases (1) and (2) or before. After the product development phase is finished activities associated with component redesign, tooling design and manufacture process design, field testing and final production are implemented.

Apart from mass produced products another important area of design practice, namely one-off or limited edition production of often artistically and socially valued products exists and needs to be discussed. This creative design work is made by designer-makers, craft practitioners and artists. It is very individual and exhibits high standards of originality and craft skills, high status value and desirability particularly among collectors and investors. Similar to the concept of the design process, the principal feature of this practice is that the design and manufacture is controlled by the individual designer-maker or artist. Objects such as furniture, ceramics or glassware are developed well past the proposition or hypothesis stage and produced as final market ready objects49 [36].

In the context of TAFE, students studying visual arts engage in design practices where one off or limited editions are produced in such areas as drawing, painting, print making, sculpture and ceramics. Students studying courses in more craft based practices like photography, jewellery, specialised cabinet making, stage design and construction and custom fashion or costume design also tend to produce one-off or limited editions of their work. From experience, it is found that the outlined model of the design process can be applied effectively in an educational setting, like TAFE, when designing relatively simple products.

2.3.3 Typical design outcomes

In brief, the design professions are known for their problem-solving capacity that benefits society by addressing the emerging challenges identified by ‘Green’ or ‘Eco-design’ movement50 [41] and posed by the apparent climate change phenomenon. According to tradition, designers are skilled at developing design concepts that integrate the interrelated

49 ibid
function and form characteristics of consumer products by applying appropriate resolutions of ergonomic, anthropometric and user-centred design issues to address how users may interact with the products\textsuperscript{51} [42]. The developed product concepts may contain embedded meanings or semantic properties bestowed by the designer during the design process. Often the products used by consumers are developed and produced as a result of close collaboration between designers, engineers, artists and other discipline specialists.

In the context of TAFE design education, some examples based on observation of popular design disciplines and their practical outcomes are listed below:

- Building and interior design – manually drawn and CAD generated 2D and 3D schematic presentation and working drawings; scale models; animated walk-through sequences, schedules and specifications with sample boards
- Graphic design – manual and computer generated concept and finished drawings/ illustrations with technical pre-press specifications for printing/ screen printing regarding fonts, formats and colour
- Multimedia and animation – conceptual development and finished artwork with technical specifications for web, CD, DVD and other digital media platforms
- Fashion design – manually and computer drawn concept illustrations, computer graded patterns, textile and assembly samples, and completed fashion range garments

Historically, the design disciplines have been taught quite separately, however, more recently there is growing evidence of collaboration and breaking down of the discipline boundaries. This is evidenced particularly in the areas of graphic, multimedia, animation design and photography where the use of digital technologies is merging practices and allowing closer collaboration. Also there is evidence of collaboration between seemingly unrelated disciplines like for example fashion, graphic design and photography where students assist each other to produce high quality work that uses fashion as a subject to promote the work of each discipline.

\textsuperscript{51} Pheasant, S., (1998), \textit{Body space; anthropometry, ergonomics and the design of work}, 2\textsuperscript{nd} edition, Taylor & Francis, London, UK
In some Australian States and Territories, TAFE Institutes, (for example, Canberra Institute of Technology and Gordon Institute of TAFE) have been allowed to develop associate and bachelor degree level courses or seamless articulation pathways to bachelor degree level studies in the higher education sector as a result of close links and consultation with universities. This seems to be happening in the context of recognising the need for a commitment for lifelong learning in order to maintain employment and career advancement prospects, and changing government policy regarding skills recognition and articulation between all the education sectors.

2.4 DESIGN EDUCATION IN THE TAFE SECTOR

2.4.1 Preamble

Except for Architecture, design education in Australia is grounded in two traditions:

1. Evolution out of art schools that emphasised development of artistic and creative skills.
2. Evolution from craft and trade based apprenticeships that emphasised the development of technical and production skilling.

Design education in the Australian Vocational Education and Training (VET) sector emerged as a separate entity only after government funding reforms of 1965. This was when the Commonwealth recognised that the State funding for infrastructure was not adequate to meet the growing demand for skilled workers in a rapidly expanding economy. The Australian Committee on Technical and Further Education (ACOTAFE) was established in 1973 to provide advice on national priorities and funding levels, particularly for capital funding and equipment purchasing.

This period marked a significant growth in the TAFE sector and began to identify national priorities for training provision. So-called ‘Night Schools’ or ‘Techs’ that trained trade apprentices expanded their studies to include full-time pre-vocational studies for school leavers. Federal Government funding supported the infrastructure and recurrent costs of these

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53 Commonwealth Tertiary Education Committee, (1986), Review of TAFE funding, AGPS, Canberra

new initiatives. This time also marked the emergence of design courses such as Graphic Design, Architectural Drafting (Building Design) and Fashion. These courses focussed mainly on providing supplementary skills improvement programs for employees of those industries. They were very pragmatic skills based, and did not significantly address the theoretical and contextual issues as the learners were expected to gain contextualised experience from the workplace.

The introduction of pre-vocational studies resulted in increased funding for new facilities, resources and qualified teachers as well as support for new approaches to teaching and learning. The existing design courses offered in night schools or techs benefited from the increased funding. A brief review here traces the developments in the Australian design VET sector from the time of Federal Government intervention through to the creation of a national system of VET. This shows the progress from distinct state-based systems to the emergence of the Australian National Training Authority (ANTA) in 1992. ANTA had the overarching responsibility for setting industry training priorities and the quality standards for training provision in a deregulated competitive training marketplace. The ANTA review examines some of the critical factors that have influenced VET culture and design training that is provided in the TAFE sector.

It is apparent from the review that the main source of influence on the Australian VET system comes from Britain, particularly since the early 1990’s. These influences had a major impact on the way design education programs in VET were developed. They were far more influential than the traditional approaches to design education in Europe and the United States of America (USA). This resulted in the dominance of the pragmatic approach that emphasises skills development in the absence of an underpinning philosophy or rationale that is typified by European or American approaches to design education.

2.4.2 **Australian Standards Framework (ASF) and Design**

The majority of industry-training advocates have generally agreed that the development of National Industry Competency Standards contributed to the overall training improvement and focus of the TAFE system to meet industry and government needs and priorities.
The Arts and Design community, represented by Arts Training Australia (ATA), on the other hand perceived the introduction of such standards as a considerable threat to the integrity of artistic and design practice that would result in “...standardised performance rather than excellence”\textsuperscript{55}. It was also felt that the competency-based approaches would not recognise “…complex conceptual knowledge and focus instead on technical skills; that they are too outcomes oriented and do not take account of the perceptual, technical and conceptual process of making; and, that they are unable to account for unquantifiable intangibles such as creativity”\textsuperscript{56}. This view was also supported by many academics in the higher education sector which is also based on a different philosophical premise\textsuperscript{57}. Initial national Arts Related Design Competency Standards were produced by Arts-Training Australia in 1995, and they were aligned with the Australian Standards Framework (ASF) to allow comparisons between levels of competency across industries, between industries, and between sectors within industries. This also allowed alignment of ASF levels with a new qualifications structure, the Australian Qualification Framework (AQF). Using a common format for consistency and ease of understanding, each unit of competency was described in terms of its purpose, the constituent elements and the associated performance criteria. The elements relate to functions/tasks students or workers should be able to do and are described as activities that are demonstrable and assessable. The performance criteria indicate the required outcomes by which the unit of competency and its elements can be judged by the assessor as having been performed at a level that is acceptable in the industry workplace context. In addition, there is a range statement that identifies variables that reflect the needs of diverse design discipline contexts and cater for specific occupational requirements. The assessment evidence guide draws one’s attention to specific requirements for specific discipline settings.

The ASF established eight discrete levels for Australian workplace competency recognition and provides the link between levels of the job requirements and the training to be provided.

\textsuperscript{55} Arts Training Australia (ATA), (1995), Mapping the Visual Arts and Crafts, ATA, NSW, Woolloomooloo
\textsuperscript{56} ATA, (1995), National arts related design competency standards, ATA, NSW, Woolloomooloo
\textsuperscript{57} Collins, C., (ed.), (1993), Competencies: the competencies debate in Australian education and training, Canberra, Australian College of Education (ACE)
for each level of qualification. This ranges from elementary entry level to entry level-professional education and training for leadership, supervisory and management roles in industry. This framework envisages that the secondary sector will be capable of delivering some of the elementary Certificate 1 and 2 qualifications; the VET sector will mainly cover the range of Certificate 1-4, diploma and Advanced Diploma qualifications and that the higher education sector will look after degree, graduate certificate/diploma and post-graduate qualifications. As it turns out, there is currently some cross-over between sectors, especially between the VET and higher education sectors in the provision of vocational education and training. This is consistent with the intention to have a uniform standardised qualifications structure across the three sectors to allow for mutual recognition, articulation pathways, portability and transferability.

These standards and frameworks were meant to inform the development of curriculum used for educating and training future workers. This training could be undertaken ‘on-the-job’ or ‘off-the-job’ or a combination of both. This type of approach to vocational education and training seems appropriate for developing production workers of the type described by Frederick Winslow Taylor\(^{58}\) [47] for a variety of industrial settings. However, in occupations where teamwork, complexity, the diversity of practices varies significantly, as is the case with different forms of design practice and contexts, this approach is less useful. These occupations are also characterised by high levels of integration and automation of processes and technologies that requires both underpinning understanding of “why” as well as “how” for effective practice. As the body of underpinning knowledge becomes increasingly interrelated, identification of any single identifiable competency, performance level, or industrial classification becomes a more difficult challenge\(^{59}\) [46].

### 2.4.3 Early Design Competency Standards and their relationship to the ASF

As already noted, the organisation that was commissioned to develop competency standards for the Arts and Design industries was Art Training Australia (ATA). By 1995, its work resulted in arts related design competencies that while meeting the requirements of the

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National Training Board (NTB), departed from the behaviourist approach taken by competency standards developed for other industries. The identified design units of competency were broad enough to encompass a diverse range of skills and underpinning knowledge required for effective and meaningful design practice. In addition to some concrete practical and observable skills, these standards included abstract outcomes that had to be interpreted, described and educationally analysed before a strategy for achieving and assessing them could be developed.

These standards were developed following wide consultation with arts and design practitioners. They expressed major concerns regarding the commonly held behaviourist approaches to competency standards in other industries, and were philosophically opposed to the concept of creativity and innovation being constrained by the notion of standardised practice outcomes. Arts Training Australia also drew on the draft standards for design that were being developed in Britain at that time. As a result the endorsed Australian standards were as broad as was acceptable within the framework of the NTB guidelines60 [48].

The National Arts Related Design Competency Standards, first introduced in 1995, describe the range of attributes of designers performing duties at four industry levels beginning with the entry level 1 which was aligned with junior design assistants and leading through levels 2 and 3 to more experienced design team leaders and managers, freelance designers or proprietors of design practices at level 4. The related consultative reference group identified creativity, communication, self-management, business skills, professional knowledge, occupational health and safety and environmental considerations as the essential aspects of design practice that design practitioners address in their discharge of responsibilities to clients, the broader community as well as to themselves and their employees.

It is also interesting to note that the Arts Design Standards industry levels 1 to 4 were aligned with the ASF levels 3 to 6 (Certificate III to Diploma) as these outcome descriptors were considered appropriate and reflective of then existing salary levels in the industrial classifications. Also significant is that when compared with the AQF, the complexity of the

Level 4 Design Industry Competency descriptor suggested the need for higher education qualifications when compared to qualification levels in other industry sectors. The most appropriate alignment of the Level 4 Design Industry Competency descriptor seemed to be equivalent of ASF level 6-7 (diploma/ advanced diploma) or possibly level 8 (associate/ bachelor degree) in some cases.

The way the design standards were written avoided the highly prescriptive elements or performance criteria evident in standards for other industries. This permitted a more comprehensive and progressive interpretation of the design industry requirements that recognised the complexity and diversity of design occupations and practices. The standards describe the required units of competency and associated sub-elements as well as the performance criteria to be used when assessing the achievement of the competency. Although they were referenced to what a person must be able to do in graphic design, interior design or the performing arts/ theatre production areas, it was possible to contextualise them for other design discipline practices by applying an appropriate range of contextualised variables.

The curriculum developers at Canberra Institute of Technology (CIT) in the Australian Capital Territory (ACT) saw these standards as a challenge and an opportunity to incorporate them into teaching and learning practices within the context of fulfilling a need to provide a more design oriented and driven approach to vocational training in design courses. At this time the predominant characteristic and focus of design courses, as in other parts of Australia, was on a practical approach for developing related technical production skills and knowledge when compared with visual arts training which was increasingly becoming conceptual at this time. This marked a significant paradigm shift for design teachers working in the ACT TAFE system in providing vocational training in fashion, graphics, interior design and photography as well as related printing, graphic arts, architectural drafting and building design fields.

The combination of the ASF and the aligned arts related design industry competency standards resulted in a thoughtful consideration of what these required design skills sets were and what

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were the essential underpinning key skills, knowledge and attitudes that contributed to competent performance against the design industry standards\textsuperscript{62} [3].

\subsection*{2.4.4 More recent developments in Visual Arts Craft and Design Standards}

The introduction of the Australian Qualifications Framework\textsuperscript{63} [49] (AQF) and design industry competency standards developed by Arts Training Australia (ATA) coincided in 1995. The AQF presents a nationally consistent structure for qualifications across the education sectors – secondary, vocational and higher education to assist with recognition of Australian and overseas qualifications. Guidelines for the AQF describe the learning outcomes at the various levels of qualification and the distinguishing characteristics of learning to inform curriculum design.

The AQF has a significant impact on design education in the VET sector from the point of view of articulation between the education sectors and preparing design students for design industry vocational destinations.

\begin{quote}
\textit{`In the vocational education and training sector, all qualifications are based on nationally endorsed competency standards where they exist or on competency standards developed by relevant industry enterprise, community or professional groups. The qualifications certify achievement of learning outcomes generally identified as sets of competencies for levels of workplace performance reflected in the characteristics and distinguishing features of each qualification’} (AQF, 1998, p. 7)
\end{quote}

Design courses in TAFE from this point forward would operate within a competency-based curriculum framework as well as teaching and assessment methodology. The fact that in Australia a set of industry standards could now be applied within each of the education sectors led to the assumption that all qualifications within a sector are subjected to the same requirements. However, this view encountered some difficulties due to the different educational approaches used in each sector and different expectations. Roantree suggested that in the VET sector the standards were seen by the design educators as being restrictive and very

\textsuperscript{62} Ibid.
\textsuperscript{63} AQF, (1998), \textit{Australian Qualifications Framework Implementation Handbook}, AQF Advisory Board, Carlton VIC
simplistic. Teachers and curriculum developers had difficulties with incorporating simple and complex areas of design study under the same standard. The development of readily useful guidelines for non-professional educators from industry with their simplifications resulted in the dumbing down of vocational design education to a training model that reflected simple behaviourist principles. [3]

The next step towards consistent standards for the VET sector led to the development of Training Packages. The ANTA policy documents ‘Policy for Training Packages’ (July 1998), and ‘Processes for Developing Training Packages’ (August 1998), define Training Packages as:
‘... a consistent and reliable set of nationally endorsed components for training, recognising and assessing people’s skills’ (ANTA, August 1998).

Training Packages were developed in response to the increased privatisation of VET in Australia. They provided a base for designing flexible training programs for a diverse range of settings with less reliance on costly input from professional curriculum design and learning management. As a result of policy decisions, ANTA issued instructions that all educational program curriculum development in the VET sector will be based on Training Packages where they already exist or as soon as, (within twelve months), they become available. Some of the early Training Packages that were related to the cultural or creative industries were introduced in the late 1990’s and early 2000’s beginning with:

- CUE98 Entertaining Industry Training Package (Performance Arts – stage design)
- CUL99 Museum Library/Information Services Training Package (exhibition design)
- ICT99 Printing and Graphic Arts Training Package (graphic design)
- LMT00 Textile Clothing and Footwear Training Package (fashion design)
- CUF01 Film TV Radio and Multimedia Training Package (film, TV, multimedia and animation production design)
- LMF02 Furnishing Training Package (decoration furnishings and furniture design)

The first version of the Visual Arts Craft and Design Training Package was released in 2003. The format and structure of this training package had departed significantly from the previous
Arts Training Australia Design Standards of 1995. Initially, qualifications in Visual Arts and Contemporary Craft as well as in Aboriginal or Torres Strait Cultural Arts were developed at ASF levels 1-4 (Certificate I, II, III and IV). Generic design qualifications were developed at ASF levels 3 and 4 – Certificate III in Design Fundamentals and Certificate IV in Design. There were no Diploma or Advanced Diploma qualifications except for the Advanced Diploma of Art Management. As a result, in response to industry needs, many design education programs offered by TAFE at diploma and advanced diploma levels continued to be developed as non-training package, competency based accredited programs registered with State Training Authorities and with the National Training Information Service (NTIS).

The introduction of the Training Packages listed above reignited the same concerns of design educators in TAFE that had been identified by Meyer in his 1983 study of design education in TAFE. Among those concerns was the growing level of industry influence on design education based on its understanding of design skills; the existing divisions between professional and non-professional design work within the industry and the need to develop more appropriate pedagogies for teaching design students about creativity and innovation. In addition there were growing concerns about:

- Tensions between the need to comply with controlling national standards and the need for innovation, creativity, flexibility and diversity which are fundamental to design culture and practice such as creative boundary-testing; exploratory options development, risk taking and critical analysis of existing solutions.
- Lack or diminishing availability of employment destinations for Certificate IV graduates who completed 12-18 months of design education.
- Uncertainty surrounding funding for non-training package based programs as funding provision was used as an incentive to develop training package based programs.

Other evidence of anxiety about training package implementation can be found in the 2006 Australian Education Union commissioned study ‘TAFE futures: An inquiry into the future of technical and further education in Australia’ conducted by Dr Peter Kell64 [50]. The study highlights the example where in the context of ceramics design, the assessment requirements

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64 Kell, P., (2006), TAFE futures: An inquiry into the future of technical and further education in Australia, Australian Education Union (AEU)
for kiln operations for fine ceramics were drawn from the building construction training package. These assessment requirements were in fact related to the manufacture of toilet pedestals. Such examples - and others can be found, of out of context assessment practices must raise questions about the validity and authenticity of competency based assessment. Design educators were also concerned about the relatively low profile of design education in TAFE compared to education for other industry sectors. Although industry representation was charged with playing a leading role in determining industry training needs, in the case of the design industry there was a noticeable lack of direction and strong leadership due to the diversity and fragmentation within this industry sector made up of the many areas of design practice. This lack of cohesion and shared vision for the design industry undermined the representation of views about the industry training needs. Numerous government and non-government bodies are listed by the Design Institute of Australia (DIA)\(^6^5\) [51] as being directly involved in the design industry sector. However, only a few had linked up with the VET sector and due to disunity among the various design disciplines, the prevailing situation seems to have contributed to confusion about design practices and design educational needs to be addressed by TAFE.

### 2.4.5 The Victorian Qualifications Framework for Design

Development of this framework was initiated when the then Victorian Minister for Education and Training, The Hon Lynne Kosky\(^6^6\) [52], MP, issued the *Knowledge & Skills for the Innovation Economy* statement in June 2002 to set the future directions for Victoria’s VET system. The way training was going to be provided in Victoria would focus more on specialisation and innovation in response to existing and emerging industry training needs to ensure graduates were equipped for the changing employment opportunities. The statement highlighted the fact that “*generic skills were not ‘soft skill’ but were the critical skills for quality and international competiveness.*”

The statement also stated that the innovation economy needed to develop strong and fast growing industries such as advanced manufacturing, aerospace, biotechnology, design,

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\(^6^5\) Design Institute of Australia, http://www.dia.org.au/content.cfm?id=246, Sighted 08/02/09  
environmental technologies and information and communication technologies (ICT). Victoria became the only state in Australia that was formulating a specific design policy as most other states and territories focussed on encouraging industry development through innovation. The governmental construct of ‘innovation’ is linked to a focus on research and development practices related to the fields of science and technology.

Following the Minister’s statement and the release of the ‘Developing Victoria’s Design Capability’ report\textsuperscript{67} [53], several related projects were commissioned, towards the end of 2003, to develop a separate Victorian Qualifications Framework for Design. These were joint projects between the Victorian Qualifications Authority (VQA) and the Union Research Centre for Organisation and Technology (URCOT), and between the VQA and Arts & Recreation Training Victoria (ARTV). Later in 2004, the Gordon Institute of TAFE, the Box Hill Institute of TAFE, RMIT University and Swinburne University were involved in a project\textsuperscript{68} [54] to map how the new Victorian Qualification Framework for Design might be implemented in those institutions across design and related discipline fields.

The ARTV\textsuperscript{69} [54] research reported that there was a global emphasis on the need to consider and academically define ‘design theory’ and ‘design research’, and their importance to design professional practice. It suggested that design should be viewed as an independent research discipline that is equal to but apart from traditional science and arts as described by Cross\textsuperscript{70} [55]:

\textit{“There has been a growing acceptance of design on its own terms, a growing acknowledgement and articulation of design as a discipline. We have realised that we do not have to turn design into an imitation of science neither do we have to treat design as a mysterious, ineffable art. We recognise that design has its own distinct intellectual culture.”}

An underpinning premise for establishing design as a separate discipline that has an interdisciplinary nature, is the need for designers to admit that it is necessary to extend design

\textsuperscript{67} Booz et al, (2003), ‘Developing Victoria’s Design Capability’, Department of Innovation Industry and Regional Development, State of Victoria

\textsuperscript{68} The project was ‘Mapping of Current Design provision in VET in Victoria’, VQA, State of Victoria

\textsuperscript{69} Leporati, C., (2003), ‘Design qualifications Framework Project – research report’, ARTV and VQA

\textsuperscript{70} Cross, N., (1984), ‘Developments in Design Methodology’, Chichester, Wiley & Sons
knowledge in order to grow the culture and tradition of design practice and research. While other industry sectors engage in the consideration of ways to integrate design into strategic operation models, designers are reviewing the way design fits into the broader world of human enterprise. Chanover\textsuperscript{71} [56] suggests that designers no longer work in isolation to create individual designs. They are increasingly seen as design managers/facilitators responsible for mediating and collaborating with different groups to develop design solutions focussed on end-users’ needs. Their role is becoming increasingly interdisciplinary and linked to social responsibilities.

Some of the key findings about trends in design practice are that design is still a difficult area to define and set parameters, and that in Australia more needs to be done to develop an Australian design culture and to increase the profile of design achievements within Australian society. There is also the need to emphasise the potential capacity of design to differentiate products in the global market.

The ARTV\textsuperscript{72} [54] research reported that the task of investigating design education initiatives in other states and territories was difficult as there was very little commentary or discussion about future directions, particularly in the context of VET design education. Most of the focus was on a nationally based set of issues and trends associated with the development of the Visual Arts Craft and Design Training Package.

In 1998 the Design Institute of Australia (DIA) developed a Design education Policy and convened a conference to discuss current issues in design education. The area most debated within design education concerns teaching methods and the content of design courses. The 1999 report by Cahalan\textsuperscript{73} [57] identified the following main issues:

- Need for interdisciplinary skills development.
- Development of teamwork and communication skills.
- Closer collaboration between stakeholders and design education to provide research for industry and the community.


\textsuperscript{72} ibid

\textsuperscript{73} Cahalan, A., (1999), ‘The Future of Design Education’, Australian Graphic Designers Association (AGDA)
- Preservation of traditional skills while embracing new technologies and methods.
- Keeping up with change and responding to industry needs.

Apart from education for designers, it is reported that there is a growing interest in integrating design teaching principles into other areas of education like science and technology, and for design principles to be taught throughout the education system from primary to tertiary education.

More recently there are reports of concerns about the future of design education as many of the design teachers with industry experience are approaching retirement. It is suggested that design cannot be taught like other areas of study and requires industry experienced teachers who are practicing designers to challenge and expose students to design practice\textsuperscript{74} [58].

Another current issue, as suggested by Bryce in his keynote address at the 1996 DIA Conference on Design Education Proceedings, concerns the methods used to select students into design courses and the connection between TAFE and university sectors. He notes that there are several methods to select student used currently that include entrance scores, portfolios and interviews and entrance diagnostic tests in the form of design mini projects. He goes on to suggest that the design industry would benefit from the adoption of a more standardised approach to student selection. In relation to articulation arrangements between TAFE and universities, Bryce also refers to Freeman’s paper presented at the ACUADS conference in Hobart, Late Twentieth Century Design Education in Australia: Observations and Proposals for Change, (1995), in which he suggested that the first two to three years of design degree education should be provided by TAFE to develop design skills training components. It is argued that the universities should not be concerned with developing basic design skills, but instead focus on developing design research for particular design disciplines\textsuperscript{75} [59]. Further, this argument is strengthened by fears that TAFE and universities are essentially delivering the same levels of design education with a subsequent reduction of the scope of academic design research and development.

\textsuperscript{74} Churches, A., (2002), Where to for Australian Design and how?, Tasmania April 2002 Forum, Australia
\textsuperscript{75} Bryce, M., (1998), Sleeping with Gropius: and learning to be a designer, DIA
2.4.6 Principles of design in education

There has been a growing interest in the potential benefits to general education reform arising from using design principles expressed in terms of ‘designerly thinking’ or ‘designerly ways of knowing’. Some academics go as far as to suggest that Design should be a formal part of education together with the humanities and sciences. Design practice reflects a combination of knowledge and skills from both sciences and the humanities and this makes it somewhat different and unique because it also has its distinct knowledge base and ways of knowing and developing new knowledge\(^\text{76}\) [60].

Nigel Cross described a ‘designerly ways of knowing’ using five key elements:

1. Designers deal with ‘ill-defined ‘problems’.
2. Design problem solving is ‘solution-focussed’.
3. Design thinking is ‘constructive’.
4. Designers use ‘codes’ to translate abstract requirements into concrete objects.
5. Designers use the codes to ‘read’ and ‘write’ objectively.

Based on the ways of knowing Cross also gave the following three reasons for including Design in general education:

- Design develops capacity to solve real ill-defined problems.
- Design upholds cognitive development in the area of concrete/iconic recognition.
- Design promotes the development of the ability to use non-verbal thought and communication\(^\text{77}\) [61].

In design education, teachers need to be able to recognise what students ‘need to know’ in terms of ‘designerly thinking’ and what they ‘need to be able to do’ in terms of ‘designerly behaviour’\(^\text{78}\) [62].

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\(^\text{76}\) Harry, D., (2002), *Learning science through design*, Education Resources Information Centre

\(^\text{77}\) Cross, N., (1990), *Designerly ways of knowing*, Design Studies, Vol. 11, No. 3

\(^\text{78}\) Anning, A., (1996), *Bodies of knowledge and design based activities*, Loughborough University
2.4.7 Design Teaching

Based on the available literature it appears that the main focus on design education, here and internationally, has been on the design teaching in the secondary and higher education sectors. However, some of the issues identified there also seem to be relevant to design teaching in the VET sector, particularly when examining design education programs, the impact of changing technologies on design practices, and design teaching and assessment methods.

Technology driven changes in design education and design practice have had a significant impact during the last decade. The introduction of digital technologies have brought closer together the type of work and methods used by students to more industry based practices and design outcomes\(^79\) [63]. These changes have prompted questions about the appropriateness of current approaches to design education and the extent to which emphasis is placed on building capacity in technological applications. There appears to be consensus regarding design teaching that is centred on ‘iterative processes’ that engage students in performing and reflecting on their performance and outcomes. Technology tends to be regarded as a one of the tools that can be used rather than an area of strong emphasis.

The main method of teaching design appears to be ‘independent learning’ in the context of ‘studio’ or ‘project-based learning’ that involves students in activities that assist students to reflect and create meaning through social interaction and individual exploration and communication. Such an approach places greater responsibility for learning on the students and is less teacher-centred\(^80\) [64]. This learning model is based on Kolb’s experiential learning theory (KELT) which describes learning as essentially a holistic process heavily reliant on personal experience. This process is made up of four main areas that are integral parts of design:

- Concrete experience (feeling)
- Reflective observation (watching)
- Abstract conceptualisation (thinking) and

\(^79\) Frayling, C., (1997), Designing themselves into a corner, The Sunday Times, London, UK
\(^80\) Ashton, P., Independent learning in design: a new culture in the design school?, commissioned for the European Academy of Design, Stafford, UK
• Active experimentation (doing)$^{81}$ [65].

In this model of the learning process, the outcomes of activities are less controllable and predictable than in traditional educational approaches, the skills and knowledge gained from experience and peer interaction leads to effective preparation for design in the workplace. Another area of continuing discussion is concerned with assessment of process outcomes, not only in terms of design but also in terms of creativity and innovation. Current research draws a distinction between creativity and innovation, suggesting that innovation can be viewed as ‘applied creativity’$^{82}$ [66]. Assessment of creativity depends on methods that assess performance rather than skills and knowledge and there are two main issues that are troublesome. In the first instance, there are unresolved problems with using consistent definitions of ‘design’, ‘creativity’ and ‘innovation’ as they are used and interpreted in different ways and they are subjective in their nature depending on the context. In addition, there is the dilemma that while trying to assess these qualities the assessment process can often lead to the reduction or destruction of creativity and innovation. Another complication is that as a result of focusing on assessment through products and processes, there is not enough impetus to develop appropriate, generally acceptable assessment instruments$^{83}$ [66]. The search for effective models of design assessment that formalise the qualities of innovative thinking is still continuing, even though design assessment has been described more clearly than creativity and innovation.

Several examples of best practice in design education in the VET sector were presented in the ARTV report$^{84}$ [54]. Current trends that were identified included a noticeable emphasis on developing interdisciplinary skills, focus on the growing profile and contribution of the design industries to business enterprises and more scholarly consideration of the role of design. The following criteria were used to identify best practice examples of design education:

• Innovative approaches used in design education.
• Awareness of current and future design industry needs.

$^{82}$ Kimbell, R., (2002), *Assessing design innovation*, working paper, Technology Education Research Unit, Goldsmiths University, UK
$^{83}$ ibid
• Recognition and integration leading to development of interdisciplinary design skills.

When looking for examples of best practice outside of the state of Victoria, these criteria were found to be less useful partly due to a greater focus on innovation in the majority of the other states and territories. Briefly the examples selected by Leporati are outlined here to show the diversity of approaches among the institutions:

• Lab3000 – RMIT TAFE was selected on the basis that it demonstrated the importance of teaching design skills that meet students’ needs within the context of the wider community.

• Kangan Batman Institute of Technology was selected for its multidisciplinary approach to teaching design.

• Forestech/ East Gippsland Institute OF TAFE were selected for its ability to develop practical industry skills in design, business and marketing while taking into consideration environmental concerns.

• Canberra Institute of Technology/ in collaboration with University of Canberra was selected in recognition of the collaborative approach between those ACT institutions and international partners with particular interest in Asian influences on design.

• Enmore Design Centre was selected for developing design education in a specialised centre environment that has consistently demonstrated its success through its students’ achievements.

The ARTV report made the following conclusions and recommendations in relation to the design industry and design education in Australia.

• There is a need to establish more independent debate on design issues and research that is less dependent on international sources in order to strengthen local discourse.

• There is a need for a ‘whole of government’ approach to design in Australia to foster Australia’s design potential.

• There is a need to encourage interdisciplinary collaboration/ discourse between the design industry and other sectors.
There is a need to encourage greater investment in the Australian design industry.

There is a distinct need for documented research into design education trends and future directions particularly at the VET level.

The is a need to broadly adopt design as basic underpinning knowledge/approach at all levels of education as well as an area of specialisation\(^{85}\) [54].

The related scoping report\(^{86}\) [67] attempted to map only national Training Package and Victorian design related courses and qualifications as well as their constituent modules and units with particular reference to the following parameters:

- Design as potential vehicle for innovation in a variety of strategic directions.
- Design as a core integrated skill accessible to all education levels and professional development across industry sectors.
- Design as an approach applied to performance, function, problem solving and processes that increase flexibility and multi-skilling outcomes for industry workers in design and other sectors. [67]

Conversations about design and design related roles across industries led to the conclusion that a broader approach beyond product/ process, or aesthetic/ function / performance was needed to describe design. The table below shows the adopted design descriptors.

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\(^{85}\) ibid

Table 2.4.7.1: Design Descriptors\textsuperscript{87} [67]

<table>
<thead>
<tr>
<th>Design Descriptors</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product, process</td>
<td>Outcome where design skills are applied to solve a given problem or particular need – for example the development of a product or quality control process</td>
</tr>
<tr>
<td>Aesthetic, function, performance</td>
<td>Incorporates creative responses to design issues – for example the development of a theatre set or design of a public art presentation</td>
</tr>
<tr>
<td>Planning, problem solving</td>
<td>Design elements of planning or problem solving to develop processes that lead to resolution of workplace issues</td>
</tr>
<tr>
<td>Crossing traditional industry or materials boundaries</td>
<td>Leading edge aspects that consider non-traditional processes or products such as multimedia or animation; new materials in manufacturing</td>
</tr>
<tr>
<td>Human interface, clients, instructional design, culture, environment and access</td>
<td>Human involvement in design through client relationships, the culture and environment of a business or training</td>
</tr>
<tr>
<td>Strategic design development, innovative thinking</td>
<td>Leading edge skills in market predictions for design, undertaking risk in design approaches that have global ramifications</td>
</tr>
</tbody>
</table>

According to Le Rossignol and Leporati, this mapping revealed a number of surprising patterns in relation to design within and across industry groupings. The mapping that also indicated that there are very few shared aims across industry groupings as each industry has distinctive applications of design. The industry grouping with the greatest variety of design units was the Human Services industry as it covers arts and entertainment, sport and recreation, community services, corrections and the health sector. The Building and Construction, Furnishing and Water industry groupings had the most consistent design focus. One of the contributing factors to these findings that was highlighted in the report [85] is the use of descriptive key words for design activities in the national training arena that fall outside the search parameters for ‘design’, ‘create’ and ‘generate’.

This report also considered the type of design focus – primary and secondary focus, within qualifications. The mapping showed that the use of ‘design’ often indicated a primary focus and that there were few qualifications with a secondary design focus. The descriptor ‘product and process’ was most commonly linked to a primary focus and it tended to be consistent between industries across all qualifications. Whereas the descriptor ‘cross-traditional boundaries’ was only linked to a secondary focus. It was reported that there was little occurrence of the descriptors ‘planning and problem solving’ and ‘human interface’, as a

\textsuperscript{87} ibid
primary or secondary design focus, and that ‘strategic design/ innovative thinking’ occurred only minimally as a primary design focus across any industry area or qualification level. The dominance of the descriptor ‘product and process’, as the primary design focus, again reinforces the general perception that, in the VET sector, design education is driven by a focus on practical skills development. This perception is compounded by an absence of focus on ‘strategic design/ innovative thinking’ to promote a more abstract approach to design and it further demonstrates that ‘interdisciplinary skills’; ‘human interface’ and ‘strategic design/ innovative thinking’ aspects of design are not being developed as students progress to higher qualification levels\textsuperscript{88} [67].

The ARTV Scoping Report also found gaps in qualifications across industries and the design descriptors. Only nine training package qualifications that include ‘design’ in their title were listed on the National Training Information Service\textsuperscript{89} [68] as compared with thirty one Victorian qualifications and 121 courses from other states and territories. As mentioned previously, the current Visual Arts Craft and Design Training Package is yet to develop Diploma and Advanced Diploma qualifications. The reported mapping showed that there is a noticeable lack of emphasis on design in qualifications at ASF levels 2 and 3 equivalent to Certificate II and III courses where the main focus seems to be on activities associated with ‘innovation’ rather than ‘design’, ‘create’ and ‘generate’. Also, there seems to be not enough emphasis placed on developing underpinning generic design or ‘designerly thinking’ skills at the lower levels. Among the final findings in the ARTV Scoping Report\textsuperscript{90} [67], the ones that stand out are:

- Where commonality of units occurs it remains within an industry grouping or similar industry settings – screen printing and product design for example.
- There is inadequate primary and secondary focus at any level of qualifications on developing communication, collaborative and interdisciplinary skills.
- Design within qualifications tends to highlight the preoccupation with developing practical design applications and tasks rather than more abstract and underpinning design methods.

\textsuperscript{88} ibid  
\textsuperscript{89} National Training Information Service, http://www.ntis.gov.au/ sighted 26/10/09  
\textsuperscript{90} ibid
• Sectors traditionally associated with design such as the arts, craft and engineering influenced the overall outcomes due to the higher importance placed on design skills.

2.5 FINDINGS

From the review of the literature, it is clear that TAFE continues to play a significant role in design education in Australia in training local and increasing numbers of international students. In this role, TAFE is supported by Federal and State government funding, national policies and relevant standards. These factors have been introduced over time as the vocational education system has been reformed to meet the changing training requirements of industries and the Australian economy generally. In recent times, this has been reinforced through the following government initiatives:

1. A continuing commitment to competency based training and assessment within the vocational education and training system, exemplified through reviews of existing training packages and the development of new specified packages across all industry sectors, including the creative industries (that include design).

2. There has been a notable amount of consultation with the various stakeholders, (but not specifically with design teachers), about the general aims and directions of VET in Australia as the pace and extent of the reforms has increased. The consultation has also occurred at the State or local institute level when courses have been reviewed and developed.

3. The commissioning of various studies of a general nature that have been undertaken to broadly evaluate the outcomes of implemented reforms in the VET sector.

Various studies into technology and design and technology education have been conducted. These have been predominantly at the primary and secondary school level as well as at the higher education level from a teaching perspective. A few studies indicate that project or problem-based learning strategies in the context of a design studio appear to be the preferred methods for developing the essential design knowledge, skills and attributes that designers rely on in their practice. Since the 1990’s, the proposed teaching methods have represented a
significant pedagogical change by endorsing a more student-centred rather than teacher-centred approaches to learning together with a movement from didactic to constructivist theories about learning\textsuperscript{91} [69]. The study by Roantree\textsuperscript{92} [3] aimed to develop a teaching framework for design education in the VET sector with particular reference to a postmodern approach to the delivery of fashion design programs. This framework, informed by the experiences of fashion design teachers engaged in the teaching process, and social constructivist theories about learning, was intended to facilitate the transition from a skills based behaviourist model to a model of learning that delivered cognitive development essential to contemporary fashion design praxis. The case study reported by Roantree pertaining to the implementation of a new fashion degree program at CIT, is of current and ongoing relevance to other areas of design education in the VET sector.

Understanding the nature of design thinking, design process and related underpinning theories has developed through related published research to the point where a variety of models of design processes have been proposed and largely accepted. Studies by Schön\textsuperscript{93} [32] indicate that the main teaching and learning activities in an architectural studio are consistent with reflective practice: a circumstance where students are thinking about what they are designing while actually engaging in the design process. It has been reasonably suggested that similar reflective practice circumstances occur in other design fields [Bonollo and Lewis, 1996/2002]. Discussion of how meaning is perceived in design shows that reflective practice is aligned with the notion of an epistemology in which meaning is constructed over time in the designer’s mind during engagement with the design process\textsuperscript{94} [70].

Studies conducted by Middleton\textsuperscript{95} [38] have investigated the nature of design expertise and the transition from a novice through to a proficient and then to expert design practice. However, he expressed concern about the appropriateness of much of the design education research being conducted when they used methods that were primarily focussed on quantitative aspects

\textsuperscript{92} ibid
\textsuperscript{93} ibid
\textsuperscript{94} Green, N., and Bonollo, E., (2003), \textit{Studio based teaching; history and advantages in the teaching of design}, UNESCO, ICEE World Transactions on Engineering and Technology education, 2(2)
\textsuperscript{95} ibid
aimed to inform technology and design technology education teaching and learning. He also suggested that the kinds of studies and methodologies being used might not be suitable for finding out about how teachers provide learning experiences to students that assisted them to creatively solve ill-defined design problems. Further, he suggested that the understanding of such matters was unlikely to be achieved by studies that focus on isolated single variables, or by studies that place too much emphasis on quantitative, descriptive research. The results of such studies apparently provide little help to teachers who were attempting to discover and implement new ways of design teaching and learning. Moreover, the views of design teachers, as stakeholders, are not made clear. And this is where, it is found, there is a gap in research data concerning the opinions and aspirations of TAFE design teachers.

The joint studies conducted by the AEU96 [2] and OTTE97 [24], generally canvassed the opinions of teachers about TAFE and teachers’ roles in the context of the reforms that have been taking place during the last two decades. However, there appears to be no specific studies that sought out the views of design teachers about the TAFE design education system, except for the recent report by Cartledge and Watson98 [71] published in 2008, that examined the implications of competency based training and national training packages for the teaching of design. However, the focus here was on assisting VET design educators to encourage creativity by examining training and assessment practices.

Moreover, in the light of these initiatives and studies, it is clear that further research still needs to be done at the TAFE Institute level to identify the system parameters and their constituent variables that are relevant to the TAFE design education system. It is important to investigate the structure and the interdependent relationships of this design education system and their impacts on the quality of design education outcomes. Hence, further research at the TAFE Institute level based on a pragmatic system design approach appears worthwhile. It is anticipated that results of this research will be of value to design teaching practitioners and the broader TAFE teaching community as well as providing a clearer understanding of the TAFE design education system. It is important to identify design teachers’ perceptions about the

96 ibid
97 ibid
98 Cartledge, D. and Watson, M., (2008), Creating place: design education as vocational education and training, NCVER, Adelaide SA
structure of a design education system and the inherent relationships, and how these interdependencies may influence the quality of the preparation of TAFE design graduates for employment in the creative industries. Moreover, this research will provide empirical evidence, (sadly lacking in many of the studies reported), on how design teaching and learning is currently conducted in the VET sector, and how it might be improved in the future.

Due to the apparent lack of significant notable published empirical studies and empirical data relevant to design education in TAFE, this thesis will investigate the process involved in the delivery of design education in the VET sector, especially from the perspective of teachers as one of the major stakeholders.

Mindful of the above findings, a conceptual rationale for exploring the design education system in the VET sector is developed in Chapter 3 of this thesis. This chapter will also describe the research methods and experimental plan used in this investigation.
3. THEORETICAL DEVELOPMENT, RESEARCH METHODS AND EXPERIMENTAL PROGRAM

3.1 PREAMBLE

The findings of the literature survey have shown that further research is required at the TAFE Institute level in the area of design education, with particular reference to the views and aspirations of design teachers, as one group of key stakeholders. There is also a need to develop a new approach to explore and understand the nature of the TAFE design education system that exists as a sub-system of the national TAFE system in the VET sector. It has been shown that very little is known in specific terms about this design education system in TAFE. Similarly, not much is known about the views of design teachers in relation to the work they perform when developing students’ design skills, knowledge and attributes for employment in the design industries. This lack of knowledge is critical at this time, as design educators strive to demystify ‘design’ and adopt appropriate teaching and assessment strategies within the current national competency based training framework.

This research project was initially informed by the writer’s design teaching experiences during almost twenty-five years of service within the ACT, VET environment, in the Faculty of Design (now the Centre for Creative Industries), at the Canberra Institute of Technology (CIT). Over a period of time, as the writer became more aware of the diversity of design education practices in other State based VET systems the scope of the research was broadened substantially to include an investigation of selected TAFE Institutes in the National System. As noted, many of the studies reviewed in Chapter 2 related to design and technology, or art and design teaching and learning in primary and secondary schools or at universities in the higher education sector. The literature has indicated that TAFE design education is a complex process that exists as a sub-system of the National VET System. Relevant aspects of systems design theory will be introduced hereunder and proposed as a plausible research strategy for investigating VET design education systems. The research strategy adopted in this thesis involved developing and applying a holistic method for investigating design education in the VET sector. This research is informed primarily by the views and opinions of the key stakeholders, (with due respect to the views of other stakeholders), namely, the teachers, program managers and coordinators who provide design education to students.

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Based on the writer’s design teaching experiences, it is proposed that design teaching and learning practices do not exist in isolation, but may be modelled as influential system parameters\textsuperscript{99} \cite{98} that may comprise one or more constituent variables. This parametric model will be explained in detail in the next section of this chapter of the thesis. It will be shown that using this model of investigation will lead to a clearer understanding of the critical issues involved in current design education in the VET sector and indicate areas of potential improvement and further research - all in the context of the views and aspirations of the teacher stakeholders.

This chapter contains a number of subsections that are set out in the following manner after the Preamble.

Section 3.2 introduces a preliminary parametric model of the TAFE design education system. The term parameter is used here to denote important system design (and operational) factors or characteristics such as curriculum design, teaching and assessment strategies and student attributes. In turn, the curriculum design parameters will have important constituent variables, such as training packages and study pathways presented as shown in a preliminary parametric model in Section 3.2 below. As noted, this proposed model is applied holistically to represent the main parameters and constituent variables perceived to be part of a TAFE design education system. Secondly, a pragmatic research method is used to identify and discuss the critical views and aspirations of design teachers in relation to these system parameters and variables as will be explained in Section 3.3 along with the rationale for this method. The primary goal of this research method is to organise and classify qualitative interview data about the design education system whilst conceptualising a parametric model of the system as part of the design process \cite{28}. Section 3.4 describes the research method and application of grounded theory in this study. The descriptions of the research questionnaire, selection of participants, data collection and the experimental plan are provided in Section 3.5. This section also includes the rationale for selecting particular interview participants and the qualitative analysis software used to construct the noted model, to code, analyse the data and findings. Section 3.6 discusses

\textsuperscript{99} Parameter: a common and acceptable dictionary definition, / (Merriam Webster)/, for this purpose refers to: 1. any set of physical properties whose values determine the characteristics or behaviours of something, and 2. something represented by a parameter such as a characteristic element; broad characteristic, element or factor. In this instance a variable is considered as a constituent element of a parameter
the discourse analytic method used to analyse the interview data. The application of the Pareto Principle in this thesis is outlined in Section 3.7. Finally, selected examples of experimental data will be presented and described in relation to the proposed parametric model of the design education system before moving on to discuss the experimental results tabled in Chapter 4 of the thesis.

3.2 A PARAMETRIC MODEL OF THE TAFE DESIGN EDUCATION SYSTEM

A parametric model of the TAFE design education system is proposed, as shown in Figure 3.2.1. This is a preliminary, tentative framework for representing (modelling), investigating and discussing with the teacher stakeholders the critical parameters and their constituents necessary for formalising and operating a TAFE educational system. This model reflects in part the system design strategy used in this research to survey the views of design teachers about the TAFE design education system and its critical characteristic dimensions and variables, and to discover the significant relationships that influence TAFE design education outcomes. This model is updated later in Chapter 4 in the light of the empirical data obtained from surveys of the teacher participants. This means that this parametric model is a preliminary but reasonable concept that will be refined later in order to arrive at a more accurate final model of the education system, with particular reference to the perception of design teachers, and in keeping with the typical output of the detailed design (DD) phase of a design process. (That is a conceptual model in keeping with the concept generation phase of the design process\textsuperscript{100} [28].)

Referring to Figure 3.2.1, it will be noted that this system model is based on a set of parameters, (hence the term parametric model), and related constituent variables which characterise the design (and operational) characteristics of the system – bearing in mind that this system is in fact a sub-system of the Australian TAFE/VET system as a whole, as noted earlier. As foreshadowed, it will be shown in Chapter 4, that the final model, as informed by experimental data, is much more comprehensive in terms of parameters and variables.

\textsuperscript{100} Bonollo, E., and Lewis, W. P., (1996), \textit{The industrial design profession and models of the design process}, Design & Education, vol6, no 2, Design Education Council of Australia (DECA), Australia
Figure 3.2.1 Proposed parametric model of a TAFE design education system based on parameters and constituent variables
Figure 3.2.1 was developed using the NVivo\textsuperscript{101} [72] qualitative data analysis software; the system shown has 5 “parent nodes” (representing the parameters that form the basis of TAFE design education system), as well as 20 “children nodes” representing the constituent variables related to the noted parameters, respectively. Note, that the “tree nodes” in the figure represent both “parent” and “children” nodes, and that the “parents” are arranged in alphabetical order. (NVivo 7 version of the software at the time did not permit other non-alphabetical arrangements to be used in the list view). Note that the number of ‘sources’ and ‘references’ are shown as zero (0) since the construct of this model preceded the experimental investigation.

Figure 3.3.2 overleaf, on the other hand, this time was constructed using the NVivo software modelling function, and shows a re-arrangement of the parameters (from top to bottom) to reflect how the system design process might proceed from curriculum design and development through to reflection and evaluation of the system as a whole – that is, the system design process if it were to be developed on an ad initio basis.

\textsuperscript{101} NVivo Version 7: a qualitative data analysis software program developed by QSR International and released in 2006. \texttt{www.qsrinternational.com/} . (See appendix 4 for a more detailed explanation).
Figure 3.2.2 Schematic diagram of proposed initial parametric model generated using NVivo software showing tree-nodes parents and children.
As will be shown in Chapter 4, the NVivo model shown in Figure 3.2.2 will be expanded and populated with data from the empirical investigation leading to a more accurate and comprehensive model of the system. Some further comments about the rationale for the systems design strategy adopted in this thesis follow hereunder.

3.3 A SYSTEMS DESIGN APPROACH TO MODELLING TAFE DESIGN EDUCATION

“This interesting definition of the architecting process implies that science and art form an integral part of the design activity which is based on four methodologies, namely: normative, rational, participative and heuristic. Science is related mainly to normative, solution-based standards, and rational methods-based system analysis. These are analytic, deductive, and experiment-based, and are generally understood and taught well. In contrast, art is apparently associated with the participative stakeholder-based, and the common sense heuristic of lessons learnt experience methodologies. The practices of architecting, and other professions like design, medicine, law and business may be non-analytic, inductive and were until recently less well understood. These practices depend on insights, vision, intuition, judgements and aesthetics when creating new solution systems for unprecedented applications. Consequently, past solution data is considered to be of limited use in relation to unmatched problem solving applications. Architecting complements science by addressing the immeasurable, by distilling past experience and wisdom, conceptualising and creatively synthesising generally not quantifiable but actual real solutions with qualitative impacts.

This is where systems design, (or the systems approach), has an important role to play.

Maier and Rechtin suggested that the basics of day-to-day modern systems architecting are similar even though the practice may vary significantly across disciplines. They argued

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103 Lang, J., (1987), *Creating architectural theory, the role of the behavioural sciences in environmental design*, Van Nostrand Reinhold Co, NJ, USA
that a systems approach is useful when examining a system as a whole. Particularly, when engaging in value judgements about what is required and design decision making concerning what is feasible. Furthermore, they described systems as a ‘collections of different things which together produce results unachievable by the elements alone’\textsuperscript{105} [75]. Referring back to Figure 3.2.1, it is posited that the system-produced outcomes or ‘system functions’ can be obtained almost entirely from the interrelationships between the parameters and constituent variables (which are mainly interdependent): - in an ideal sense, they are the result of the endeavours to achieve a resolved fit and balance between competing needs and the stakeholders’ interests, together with the available human and material resources, technologies and funds.

To expand on the earlier discussion, it is reasonable to propose, that a TAFE design education system can be also be considered as a collection of parameters with constituent variables which together also produce educational outcomes that would not otherwise be achieved by any one of them independently alone. Furthermore, taking the systems design approach to TAFE design education requires paying particular attention to the inherent reasons for developing such a system. In other words, ideally, the system developers would have based their system on the clients’ or stakeholders’ needs. In this research, and with due respect to the needs of other stakeholders, the design teachers in the TAFE design education system are seen as pivotal stakeholders who interact with the other stakeholders during most of the phases of design education development, delivery and evaluation processes. Their views and aspirations are therefore important to developing an effective understanding of the TAFE design education system, and its teaching and learning practices that have evolved under the influence of the interdependent relationships among the parameters and variables.

3.4 RESEARCH METHODS – THE USE OF A PRAGMATIC APPROACH AND GROUNDED THEORY

In this thesis, essentially two levels of research have been used. The first concerns the development of the noted system based research strategy (or approach), and as informed by the design process, for the purposes of investigating the TAFE design education system

\textsuperscript{105} ibid
outlined above. This form of research often begins with “the theoretical and philosophical considerations and analysis of paradigms”\textsuperscript{106}[76]. Nevertheless, these theoretical proposals can best be investigated here from the point of view of a systematic understanding of the processes and methods of operation of the design teaching practitioners in the Australian TAFE design education system. Therefore, it has been necessary to use a second level of research that required the development of survey questions to be put to the teaching stakeholders in order to pragmatically test the appropriateness of the theoretical proposals. Hence, in this sense, the basic research procedure used in this study, according to Punch\textsuperscript{107}[76], can be described as a \textit{pragmatic method}. That is, the research derives its purpose from an investigation and analysis of the answers to survey questions related to the system parameters and their constituent variables under examination in a pragmatic and straightforward method.

\subsection{3.4.1 Grounded Theory}

It is also appropriate to outline the grounded theory method also used in this study of the TAFE design education system, and how the teaching practitioners perceive their roles. The grounded theory method (GTM) was selected mainly due to the limited amount of relevant empirical research data concerned with TAFE design education in Australia, and for other reasons as explained below. Grounded theory was developed by Glaser and Strauss\textsuperscript{108}[77] and it essentially begins with a research situation. Babbie\textsuperscript{109}[78] states that through inductive approaches to the study of the situation, grounded theory attempts to develop a theory from the constant analysis of the patterns, themes and common categories discovered in interview or observed data\textsuperscript{110}[78]. Further, this approach endeavours to combine a naturalist approach with a positivist concern for a “systematic set of procedures” for doing qualitative research. It has been suggested by Strauss and Corbin\textsuperscript{111}[79] that grounded theory permits researchers to be concurrently scientific and creative provided that three key guidelines are adhered to, namely:

\begin{flushleft}
\textsuperscript{107} ibid
\textsuperscript{109} Babbie, E., (2005), \textit{The basics of social research}, Thomson Wadsworth, Belmont CA
\textsuperscript{110} ibid
\textsuperscript{111} Strauss, A. & Corbin, J., (1990), \textit{Basics of qualitative research: grounded theory procedures and techniques}, Thousand oaks, CA, Sage
\end{flushleft}
- Periodical distancing of the researcher and asking: what is going on and does the data fit the reality.
- Remaining sceptical – all theoretical explanations, categories and questions about the data, irrespective of whether it is derived from literature or experience should be regarded as interim and needs to be checked against actual data.
- Adherence to the research procedures – the data collection and analytical procedures are intended to provide rigour to the study and assist with overcoming biases and the examination of some of the assumptions that might influence the unrealistic interpretation of the data.

Grounded theory places a strong emphasis on systematic coding for achieving validity and reliability in the data analysis which has guided the writer to employ NVivo\textsuperscript{112} [72] and Leximancer\textsuperscript{113} [80] qualitative data analysis software in coding and analysing these data as explained later. This aspect of grounded theory implies a somewhat positivistic consideration of the data to allow grounded theorists to remain open to using mixed qualitative and quantitative methods with no preconceptions to discover patterns, and to develop theories from the ground up. This is in some regards similar to doing design problem solving and the application of the design process (also discussed again later).

The Grounded Theory Method (GTM) has evolved from grounded theory as an analytical approach to qualitative data, and as indicated by Glaser and Strauss\textsuperscript{114} [79] it involves four stages, namely:

1. \textit{Comparison of incidents applicable to each category}. This process is similar to conceptualisation that leads to the specification of the nature of concepts or parameters and the many variable dimensions.

2. \textit{Integrating categories and their properties}. At this stage the researcher starts to notice relationships among concepts after all the relevant concepts have been identified.

\textsuperscript{112} ibid
\textsuperscript{113} \textbf{Leximancer}: a software text analysis tool used to analyse the contents of collections of textual documents and to display extracted information visually. (For more detailed explanation of Leximancer see Appendix 5)
\textsuperscript{114} ibid
3. **Delimiting the theory.** As the pattern of relationships becomes clearer some of the concepts can be ignored if they seem to be irrelevant to the inquiry and through this elimination process the theory may become simpler.

4. **Writing the theory.** The research findings have to be described and shared with others. This process can improve or modify the understanding of the topic.

In order to understand the structure and workings of the noted TAFE Design education system, and the concerns and aspirations of the design teaching practitioners, (as one of the key stakeholders), it was found necessary to develop a research methodology that would bring the subjects and the researcher together. Babbie\textsuperscript{115} [78] upholds the view that all quantitative and qualitative research methodologies available to social scientists can generally be ascribed to five categories: Experimental Research, Survey Research, Field research, Unobtrusive Research and Evaluation Research. Among them, Field Research, as employed in this thesis, is usually used to obtain qualitative data that can be useful in the generation of theories related to the social setting under investigation.

This thesis has been planned and structured in a program taking into consideration the specific problems, context and aims described in the research aims and related relevant questions (recall Chapter 1 discussion). The context and settings of TAFE design education require responsive and adaptive research approaches that are distinctive in this setting. The main investigative research tool, in this context, has been visiting and interacting with the design teaching practitioners in their own environments in order to obtain their views and opinions as qualitative data.

Qualitative research is described by Babbie as empirical research that does not depend on measurable or numerable data to solve problems and seek understanding\textsuperscript{116} [78]. There is a growing acceptance of this type of research, and it is being used more widely in recent years, particularly in the field of social research as the studies have become broader and more complex due to the extensive diversity of paradigms, views and approaches to data analysis inherent in qualitative research. In addition, it has been suggested by others that, in terms of

\textsuperscript{115} ibid
\textsuperscript{116} ibid
epistemology, qualitative research is constructionist in principle as truth or meaning evolves in and out of the engagement with the subjects and the realities of the studied settings\textsuperscript{117} [33], and the meaning is then transmitted within a social context. Design is also often viewed as a constructionist epistemology because meaning in product design also evolves as the object form is developed in the designer’s mind\textsuperscript{118} [81]. The investigations reported in this thesis can be considered in terms of constructionist epistemology as their understandings and significance is derived from field research underpinned by qualitative data collection and analysis. The description of the interview techniques and field work details follows.

3.5 QUALITATIVE INTERVIEWS – PARTICIPATING INSTITUTES AND QUESTIONNAIRE DESIGN

As introduced in Chapter 1, the field research noted above is an example of research that depended on the collaboration of Institutes of TAFE and their staff members who voluntarily agreed to participate in the study. Before establishing formal contacts with the subjects in a qualitative field research study, (as suggested by Babbie), it was necessary to have some familiarity with the subject groups and understand the general philosophical context. This was afforded to this researcher by his TAFE design teaching experience in the ACT, and by associating with teacher networks in other States and other education sectors over a number of years. Babbie\textsuperscript{119} [78] suggests further, that there are many different ways of establishing initial contact with people who will be the subjects of a study. The choice depends on the role the researcher intends to play and, particularly, if the role is to be one of being a complete participant, one should find ways of developing identity with the participants to be studied\textsuperscript{120} [78]. Being an experienced design teacher made it possible for the writer and the subjects to regard each other as peers.

\textsuperscript{117} Crotty, M., (1998), \textit{the foundations of social research; meaning and perspective in the research process}, Allen Unwin, Australia
\textsuperscript{118} Glanville, R., (1998), \textit{Keeping faith with design in design research}, in Designing Design Research 2: The Design Research publication, Cyberbridge – 4D Design, \url{http://www.dnv.ac.uk/dept/schools/des-man/4dd/drs2html}, Robertson, A., (Ed), De Montford University, Leister, UK
\textsuperscript{119} ibid
\textsuperscript{120} ibid
In this qualitative research, the semi-structured interview method\textsuperscript{121} [82] that follows an interview guide was used. Typically, topics to be covered were specified in advance by key questions, but the interviewer decided on the sequence and wording of the questions during the interview. Follow up questions were also used to expand or clarify the topic exploration, and to obtain additional relevant data. This method is a more systematic and comprehensive approach, however, the interviews retain their conversational and situational character as a research strengthening quality. On the other hand, important topics may be omitted and the flexibility in the sequence and wording of questions may result in different responses from different perspectives thus reducing their comparability. Further, using the semi-structured interview method is highly compatible with the focus group technique which relies on participants discussing the topics. Focus groups can provide large quantities of information efficiently and are particularly useful when identifying and exploring beliefs, attitudes and behaviours, and for identifying relevant questions for individual interviews. However, focus groups provide no information about frequency distribution or distribution of beliefs or behaviours. (Using the NVivo qualitative data analysis software in this study, the frequency of distributions of participants’ views in relation to the parameters and their constituent variables was obtained). Focus group interviews may be difficult to conduct and depend on the skills of the moderator. It is possible for participants to influence each others’ responses so it is advisable to take care when analysing results.

Also it was necessary to obtain permission to undertake these interviews from the Committee for the Ethics in Human Research in the University of Canberra by formally submitting to the Committee an outline of the proposed research program together with the research aims, and the interview questions that were to be used. This submission also described the commitment and procedures for safeguarding the data and ensuring the privacy of the participants.

3.5.1 Selection of participants for interview

There are approximately fifty (50) publically funded Institutes of TAFE in Australia, and altogether over 246 public and private organisations that provide aspects of design education

in a range of design disciplines\textsuperscript{122} [68]. In this field research study, thirteen TAFE Institutes, across all Australian States (but not in the Territories), were selected. This represents approximately a quarter (25\%) of all public TAFE Institutes in Australia. The participating TAFE Institutes were selected on the basis of the range of design courses offered, using the 2003 Art & Design Education Resource Guide published, annually since 1983, by DG International Media Pty Ltd. When making the sample selection from the list of TAFE Institutes it was intended to achieve a representative sample from each State and to ensure that the selected TAFE’s offered a broad range of design programs to students.

The sampling process included the following stages:

- Definition of the population of concern in this study – namely, the population of design teaching practitioners working in public TAFE Institutes.
- Specifying a sampling frame that is representative of the cross section of the population, and who have an equal chance of being included in the sample after taking into account relevant practical, economic, ethical and technical considerations - the 2003 Art & Design Education Resource Guide.
- Specifying a sampling method for selecting participants – discussed below.
- Determining the sample size – discussed below.

An attempt was also made to develop a probability sampling scheme based on ‘cluster’ or ‘multi-stage’ sampling methods. These methods have the following in common:

1. Every element has a known nonzero probability of being sampled and
2. Involves random selection at some point.

The process used to select participants may be regarded as a two stage process in that, in the first instance, the TAFE Institutes were selected and, secondly, the related participants were selected. However, the randomness of the selection is difficult to determine as in the case of this study, the selection was not entirely random and was based on reasonable considerations pertaining to the number of design courses offered at each Institute, and their location within States in Australia other than the Territories. However, the writer played a very minimal role in the actual selection of the participants as they were largely either nominated or self-selected.

on a voluntary basis by the relevant authorities in each Institute. This techniques, therefore is the process of taking random samples from a previous random sample. Although it is not as effective as true random sampling, it assists with solving more of the intrinsic problems of random sampling. As a strategy it is effective because it relies on multiple randomisations, and as such it is very useful.

Using sampling statistics to calculate the sample size and to find the confidence interval\textsuperscript{123} [83] usually applies when considering normally distributed populations, and when the data are drawn at random. In the case of this study, the data are unlikely to have been normally distributed and, since the sample Institutes have been deliberately selected from all the States (except the Territories), the calculation for the required samples size and confidence interval would not be reliable, except to give a very rough guide. For instance, since the total of 57 participant interviewees were employed in the 13 institutions, and assuming an overall population of approximately 200 over the 13 institutions, a typical calculation would yield a confidence interval of 11 at the 95% confidence level\textsuperscript{124} [83]. Although this calculation appears reasonable and consistent with statistical theory, there is a lack of information about the parent population distribution data, and therefore the result has limited value.

In contrast, the method employed in this investigation is more in line with the Proximal Similarity Model approach to generalisation suggested by Trochim\textsuperscript{125} [83]. Under this model consideration was given to different contexts where generalisations may be made, and developing a presumption about which context is more or less similar to this study. For instance, there are similar TAFE Institutes which have similar design teaching practitioners working in them which are similar to those included in this study. These settings can be organised according to their relative similarities to establish a gradient of similarity. Such a proximal similarity framework allowed generalisation of the results to other persons, places or times that are more proximally similar to those in this study. However, it needs to be pointed

\textsuperscript{123} \textbf{Confidence interval:} is the plus or minus figure usually reported in opinion poll results; for example using a confidence interval of 4 and 47% of the sample pick an answer, one can be sure that if the question was asked of the entire relevant population, between 43% (47-4) and 51% (47+4) would have picked that answer.

\textsuperscript{124} \textbf{Confidence level:} is the indicator of how sure one can be and is expressed as a percentage to represent how often the true percentage of the population would pick an answer. The 95% confidence level means one can be 95% certain. Most researchers use the 95% confidence level.

out that it is not possible to generalise with certainty as it still remains a question of more or less similar contexts.

It will be demonstrated, that the key to establishing the external validity of this study is based on the similarities of the institutions from which participants were selected, and the similarities between the different groups of interviewees, institutional settings and timeframes over the period of data collection. This is further reinforced, as will be shown, by using Leximancer and NVivo software to illustrate the degree of proximal similarity between identified and mapped concepts embodied in the interviews. In addition, this study method has been replicated in a variety of places with different people, and at different times in the reiterative processes used in this investigation.

Due to the distances involved, the initial contacts were made using email correspondence and telephone communication to introduce the researcher and to explain the purposes of the research. This was followed up by introduction letters from the University to obtain the required approval and cooperation from Institute Administrators, and to arrange appointments. These contacts were formalised by providing ‘Informed Consent’ forms that outlined the scope and benefits of the research to the participants for their consideration before choosing to participate (see Appendix 7). It has been pointed out by Babbie\textsuperscript{126} \cite{Babbie2010} that provision of the purpose of the research may pose an ethical dilemma as it may reduce cooperation or affect participants’ behaviour. In this regard there was no observable reluctance or deliberate intent, on the part of the participants, to undermine the examination of the issues by the researcher together with the participants.

As outlined in Table 3.5.1 overleaf, the participants involved in this study were, in the majority of cases, full-time, part-time and casual teachers (27), some (6) were program coordinators, and a few (9) were head teachers, and heads of school (4) involved in the delivery of design education in selected Australian TAFE Institutes. The remaining staff (11) had either unassigned (4), administrative or senior leadership/management (7) roles in the

\textsuperscript{126} ibid
context of TAFE design education. (Additional information is given in Appendix 5 NVivo Project/Cases)

Table 3.5.1 List of participating TAFE Institutes and interview participants

<table>
<thead>
<tr>
<th>STATE</th>
<th>TAFE INSTITUTES</th>
<th>NUMBER OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NSW</td>
<td>Sydney Institute of TAFE – Enmore Design Centre</td>
<td>9</td>
</tr>
<tr>
<td>2. VIC</td>
<td>Gordon Institute of TAFE</td>
<td>5</td>
</tr>
<tr>
<td>3. VIC</td>
<td>Swinburne University of Technology – TAFE Division</td>
<td>2</td>
</tr>
<tr>
<td>4. VIC</td>
<td>Box Hill Institute of TAFE</td>
<td>8</td>
</tr>
<tr>
<td>5. TAS</td>
<td>Institute of TAFE Tasmania - Launceston</td>
<td>2</td>
</tr>
<tr>
<td>6. TAS</td>
<td>Institute of TAFE Tasmania - Hobart</td>
<td>2</td>
</tr>
<tr>
<td>7. QLD</td>
<td>Southbank Institute of TAFE – Morningside Campus</td>
<td>4</td>
</tr>
<tr>
<td>8. QLD</td>
<td>Sunshine Coast Institute of TAFE – Cooloola Campus</td>
<td>4</td>
</tr>
<tr>
<td>9. WA</td>
<td>Central TAFE – Perth City Campus</td>
<td>2</td>
</tr>
<tr>
<td>10. WA</td>
<td>Central TAFE – Leederville Campus</td>
<td>8</td>
</tr>
<tr>
<td>11. SA</td>
<td>SA TAFE - Croydon Park</td>
<td>5</td>
</tr>
<tr>
<td>12. SA</td>
<td>SA TAFE - Tea Tree Gully Campus</td>
<td>3</td>
</tr>
<tr>
<td>13. VIC</td>
<td>RMIT – TAFE Division</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>

The list above shows in chronological order the participating TAFE Institutes and the number of interview participants. Visits to the participating Institutes were conducted in the period between November 2004 and August 2005.

Once initial contacts were made with the relevant authorities, and permission to visit the selected Institutes for the purposes of this research were obtained, arrangements were made to meet individuals or focus groups at the appointed times. The TAFE Institutes actually nominated the main contact person to coordinate the meetings. Participants were to be selected from among staff members who expressed an interest and on the basis of their availability at the appointed time for the purposes of this study. This was important because this study aimed to gather the views, opinions and aspirations of a cross section of practicing TAFE design educators. As shown in Table 3.5.1 above, there were altogether fifty seven (57) participants who were interviewed as part of a focus group interview or individually (6). All the participants, with the exception of two participants, were not known to the writer prior to the interviews. It is difficult to estimate the total number of design teachers currently employed in TAFE generally and specifically in the selected TAFE Institutes. However, it is estimated that
this number of participants represents a significant proportion (approximately 30%) of the body of Institute teachers relevant to this study. (For a coded list of participants, list of participating interviewed subjects and for Demographic Case Data, see records in Appendix 5). These numbers were considered to be a reasonable cross section sample given the interstate logistics of visiting the selected TAFE Institutes, and holding one-on-one interviews and focus groups with the 57 participants.

3.5.2 Questionnaire design and data collection considerations
Babbie\textsuperscript{127} [78] has pointed out that the interviewing conducted during field research studies is different from survey research. The difference lies in that, in surveys, questionnaires tend to be fairly rigidly structured. In field research, they are less structured and likely to be more flexible, improvised, exploratory, and repetitive as the thread and direction of the discussion unfolds in and around the main themes under investigation. He goes on to say that qualitative interviews constitute an interaction between the researcher and the individual or focus group participants. The interviewer usually has a general plan of inquiry but not a complete set of questions that must be asked in a particular way. However, he suggested that it is essential that the interviewer is familiar with the types of questions to be asked in order to obtain relevant information fluently. Babbie found that field research interviews are similar to a conversation in which the interviewer establishes the general direction for the conversation and follows up on specific topics raised by the participants. When properly done, and the questions are not biased or too inquisitive, field research interviewing can allow one to find out what is happening\textsuperscript{128} [78].

In this investigation, to be conversant with the subject area of the research, the writer relied predominantly on the relevant literature that was available only to a limited extent, and on the experience drawn from design teaching practice enriched by participation in a range of design teaching networks, for example: numerous Program Reference Panels as design curriculum coordinator and developer at CIT; member of the Board of Secondary School Studies Accreditation panels in the ACT for Technology and Design as well as Art and Design courses; participation in national consultation in relation to reviews of relevant training

\textsuperscript{127} ibid
\textsuperscript{128} ibid
packages in visual arts and design, graphic arts and digital media, and interior decoration and design; and participation in national conferences organised by AVETRA, HERDSA, ACUADS and other forums at the local level. The interviews and focus groups in this study resembled mediated conversations where questions were asked and followed up by further questions that clarified, explored and elaborated the issues raised more deeply in a manner similar to the one described in the texts. A framework of relevant questions is given in Table 3.5.2 (in keeping with the research questions posed in Chapter 1).

Note that this framework of questions follows the syntax of the proposed parametric system model of the design education system depicted earlier in Figure 3.2.1.

Table 3.5.2 List of Questions

<table>
<thead>
<tr>
<th>QUESTIONS FOR DISCUSSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRICULUM DEVELOPMENT:</td>
</tr>
<tr>
<td>1. What are the current underpinning principles and educational theories that determine curriculum development in the VET context and distinguish it from the other education sectors?</td>
</tr>
<tr>
<td>2. What have been the main influencing factors in the last ten years that have impacted on curriculum development in the area of design education and training?</td>
</tr>
<tr>
<td>3. What is the extent to which structured study pathways and external articulation requirements have influenced the curriculum design?</td>
</tr>
<tr>
<td>4. Is VET pedagogy currently evolving in isolation from teaching practices in the other sectors? If so why?</td>
</tr>
<tr>
<td>5. Currently are there any identified gaps in the education and training of designers in VET? What are they?</td>
</tr>
<tr>
<td>6. What are the anticipated requirements that will need to be addressed by VET design education in the next 5-10 years?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDENT SELECTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are the design programs offered open to all applicants or do they have to meet some entry requirements and selection criteria? What are they?</td>
</tr>
<tr>
<td>2. What are the criteria used by selectors to identify suitable applicants?</td>
</tr>
<tr>
<td>3. How are student selection decisions made and what influences are operating when making those decisions?</td>
</tr>
<tr>
<td>4. What are the most common reasons given by applicants for wanting a design career?</td>
</tr>
<tr>
<td>5. Why some applicants are judged not suitable?</td>
</tr>
<tr>
<td>6. Are there any emerging concerns about school leavers’ capacity to study for a design career?</td>
</tr>
<tr>
<td>7. What can unsuccessful candidates do to improve their selection prospects?</td>
</tr>
<tr>
<td>8. What is the proportion of all new enrolments who are mature age students?</td>
</tr>
</tbody>
</table>

129 AVETRA: Australian Vocational education Research Association
130 HERDSA: Higher Education Research and Development Society of Australasia
131 ACUADS: Australian Council of University Art and Design Schools
Table 3.5.2 List of Questions continued…

**PROGRAM DELIVERY:**

1. What steps are taken to ensure that the programs are being delivered in accordance with the curriculum and any underpinning philosophy or educational approaches used by the ‘school’?
2. What are the guiding delivery principles and methods used by the ‘school’?
3. What are the main strengths and characteristics that distinguish VET design teaching and learning practices from other sectors?
4. What are the significant teaching and learning experiences that are effective in the development of young designers?
5. How do teachers ensure that the appropriate balance between theory and practice is maintained and is this balance shifting one way or another? If it is shifting why is this happening?
6. How do you ensure that students remain focussed on achieving required learning outcomes or Units of Competency?
7. To what extent is ‘customisation’ of training a feature of the program delivery?
8. In what areas of teaching and learning practice do you see a need for change in order to respond to the emerging training needs of the design industries and students?
9. In what ways could teaching and learning practices in VET be made more creative and innovative when responding to design industry training needs?

**ASSESSMENT:**

1. What are the strengths and distinguishing features of the assessment processes used to assess design students’ performance in the VET context?
2. What are some of the main difficulties with making those assessments?
3. When making judgements about student performance and achievement of learning goals what factors influence that decision-making?
4. How could assessment practice be improved to make it a more positive experience for students?

**REFLECTION AND EVALUATION:**

1. What is the value placed on reflection and evaluation in the context of design education in VET?
2. Who are the participants in the evaluation process?
3. In what ways does this assist the VET system to be more responsive to the needs of the various stakeholders?

Moreover, the questions in Table 3.5.2 above were used to guide the discussion to ensure that there was a reasonably high level of consistency with regard to the areas that were discussed and explored during the interviews. The duration of the interviews, subject to availability of the participants, ranged from approximately thirty six (36) minutes to almost two (2) hours with the majority of the interviews having a duration of well over one (1) hour. Every effort was made to cover all the areas shown in Table 3.5.2. However, in some cases, responding to the participants’ level of capacity to provide information, interest and engagement with the topics under discussion, some variations occurred in the richness of information provided. Supplementary questions were often used to clarify answers or to expand the topic and to obtain additional information. For example, in the context of discussing industry’s capacity to
effectively express its training needs in terms of what they are looking for from graduates, the following extract from an interview transcript (Table 3.5.3 below), illustrates the method used to obtain data. In this instance, in the context of discussions with staff, the researcher was trying to find out what is driving the need for multi skilling and knowledge development in the graphic design industry. (See also Appendix 2 for full transcript details).

Table 3.5.3, Example of the interview questioning method used in relation to training needs in the graphic design industry. (RMIT, interview 1)

<table>
<thead>
<tr>
<th>RESEARCHER</th>
<th>So do you think that, that from your experience and observation, this kind of approach is starting to evolve in other places as well? People are recognising that these synergies exist and that they are important?</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEAKER 1</td>
<td>Well it’s about two things. It’s about dissolving boundaries and it’s about cutting silos down.</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>And is that driven by the technology that we’re using increasingly or is it simply..?</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>I think it is because they kind of merge. I mean see in the graphics area, I mean it’s all changed because you can get different software packages and you can kind of design letterheads and so forth. So it is about that and people are becoming and are expected to be much more multi-skilled.</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>But is it more about the cognitive development as well in terms of, I mean you can use the technology and the software but you haven’t got the capacity to think and be creative?</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Exactly, it’s no good designing a person to be creative if they can’t market themselves; if they can’t problem solve; if they don’t know how to run a business. Because you know there are lots of creative people that go broke.</td>
</tr>
</tbody>
</table>

To add to this discussion on interviewing participants, Babbie has outlined the process of field research interviewing as one involving the asking of initial questions, listening to the answers, interpreting their meaning for relevance to the general inquiry, and then letting them shape the next questions to elaborate or redirect the subject’s attention towards an areas of higher relevance to the research. Ideally, the interviewer should allow the participants to do most of the talking and subtly facilitate the flow of the conversation\textsuperscript{132} [78]. As suggested by Herbert

\textsuperscript{132} ibid
and Rubin\textsuperscript{133}[84], there are a number of ways to control a guided conversation. One way is to limit the number of main topics to maintain the conversational flow, and to avoid abrupt transition between topics as this can create the impression of a lack of interest in what the subject has to say, and cause a sense of an agenda that the interviewer wants to cover. In fact, it is important that interviewers remind themselves that they are not having a normal conversation where each participant wants to appear to be an interesting person, as this will be counterproductive and interfere with listening. Hence, it would be better to appear to be interested in what is being said. Lofland and Lofland\textsuperscript{134}[85] advocate that, when interviewing, researchers might adopt the role of the ‘socially acceptable incompetent’ person who does not understand the situation being examined.

In this thesis, in the quest for design teachers’ perceptions about the TAFE design education system, the participants were found to be obliging in providing their views, aspirations and suggestions concerning the system. In the main, the researcher attempted to and largely succeeded in maintaining the role of the less informed but genuinely interested party. As reported by others, qualitative researchers use the focus group method that also uses semi or unstructured interviews to systematically and concurrently question several participants in a guided discussion of some topic for the purpose of exploring rather than describing or explaining any definitive phenomenon. Typically, more than one focus group was convened for the purposes of this research study because a single group would be too atypical to provide any general insights\textsuperscript{135}[78].

Interestingly, Gamson\textsuperscript{136}[86] analysed the content of press coverage to establish the context within which people discuss politics and then used focus groups to observe the process of people discussing issues with group members. The advantages of focus groups have been summarised by Krueger\textsuperscript{137}[87], namely, as a socially oriented research method that:

- Captures real life data from social settings

\textsuperscript{134} Lofland, J. & L. H. Lofland, (1995), \textit{Analysing social settings: a guide to qualitative observation and analysis}, 3\textsuperscript{rd} edition, Belmont, Wadsworth
\textsuperscript{135} ibid
• Is flexible
• Has high validity
• Can lead to speedy results and
• Is not expensive

One other reported advantage is that the group dynamics often highlight aspects of topics that would have not been anticipated and would not have emerged from individual interviews. Just as there are advantages there are also disadvantages as reported by Krueger. These include less control of the interview, more complex and difficult data analysis requirements, a need for higher level of skills for focus group moderation, difficulties if there are significant differences between groups, difficulties with arranging focus groups and the need for settings conducive for discussion. Control of the focus group dynamics is important to avoid domination of the discussion by individuals as this may prevent other from participating more fully and lead to group conformity. Also it is important for the interviewers not to bring their own views into play. Morgan\textsuperscript{138} \cite{morgan1993} reported that focus groups can be very useful for developing questionnaire items for follow up surveys.

By and large, the interviews that form part of this study have been conducted with individual participants and focus groups, and have followed the principles reported in Babbie’s ‘The Basics of Social Research’ as outlined above. Relatedly, Kvale\textsuperscript{139} \cite{kvale1996} describes seven stages in the complete interview process, namely:

1. Thematising aimed at clarifying the purpose of the interviews and the concepts to be explored.
2. Designing the process layout by which the purpose will be achieved.
3. Interviewing.
4. Transcribing to create a written record of the interview.
5. Analysing to determine the meaning of the information in terms of the study.
6. Verifying to check the validity and reliability of the information.
7. Reporting to share what has been found.

\textsuperscript{138} Morgan, D., (1993), Successful focus groups: advancing the state of the art, Thousand Oaks, CA, Sage
\textsuperscript{139} Kvale, S., (1996), Interviews: an introduction to qualitative research interviewing, Thousand Oaks, CA, Sage
In this thesis, the interview transcripts underwent natural language processing by intuitive parsing by the writer to remove obvious repetitions and unnecessary words that did not add meaning to the conversation. The purpose of this parsing method (which was cross checked by the writer’s supervisor), was to analyse the transcript sentence strings in order to eliminate ambiguity and complexity, and to identify the main function and syntactic relationship of each part of speech during the distilling, or sense and comprehension making, within the relevant context of the conversation. The term “natural language processing” is used in the field of computer science and linguistics concerned with interactions between computer and human language. However, in this thesis, the kind of parsing that has been used initially was based on human reasoning applied to the written transcript of the interviews without the assistance of computer based parsing tools. Models and an overview of the history of natural language processing have been outlined by Bates\textsuperscript{140} [90]. She also discussed some of the problems associated with natural language understanding in the context of computer-based natural language processing and with parsing included issues such as those related to:

- Speech segmentation in verbal speech where there are hardly any pauses between words and the location of boundaries needs to take into account grammatical and semantic rules as well as the context
- Word sense ambiguities where words have more than one meaning and the relevant meaning that makes most sense has to be selected on the basis of context
- Syntactic ambiguities where the grammar may be ambiguous and there are several possible parse outcomes, and choosing the most appropriate one again relies on semantic and contextual information
- Imperfect or irregular input where unconventional language, utterances, figures of speech or errors exist in the speech or text and
- Speech acts and plans where a sentence can be considered as an action by the speaker but there is insufficient information to define the action. For example “Can you do this task?” is a question that requires a yes or no answer. However, “Can you pass your plate?” requires a physical action to be performed\textsuperscript{141} [90].


\textsuperscript{141} ibid
However, the basic problem appears to be one that consists of a source of speech or text being processed by ‘speech recognition’ or ‘reading’ processor before leading to a word string that conveys the meaning or explains the significance. In this thesis, the role of the ‘processor’ was initially played by the researcher. Other methods of transcript analysis were also used and will be described below.

This field research study, using the noted grounded theory method, approached the generation of Interview Questions (as shown in Table 3.5.2) based on the need to find questions that could ask for data that responded to and explored the themes associated with the proposed parametric model of the TAFE design education system previously described in Chapter 3.2. More specifically, the interview questions were focussed and linked to topics commonly associated with the system of TAFE design education as a framework for discussing the parameters and variable constituents of the design education system. This framework was used to establish a flexible guiding plan and sequence for the interviews that discussed the following themes:

- Stakeholders, their roles and training needs
- Underpinning attitudes
- Curriculum determinants
- Curriculum design
- Student qualities
- Teacher qualities
- Teaching strategies and ways of learning
- Assessment practices
- Graduate attributes
- Feedback and evaluation and
- Issues and suggestions.

As the interviews were semi-structured, other supplementary questions were introduced during the interviews to obtain further data to clarify and explore the themes more deeply. As noted previously, a set of core questions about the themes was approved by the University of Canberra Committee for Ethics in Human Research, and was provided to potential participants in the study for their information prior to the interviews. For example in relation to assessment practices the following questions were used:

- What are the commonly used approaches to assessment?
- To what extent is assessment moderation occurring?
To what extent is student self and peer assessment used?

How could assessment practice be improved to make it a more positive experience for students?

As the interviews progressed, it became clear from the responses of the teacher-stakeholders that additional system parameters and constituent variables were involved in the TAFE design education system design than had been anticipated in the preliminary model proposed in Figures 3.2.1 and 3.2.2. As noted, these additional parameters and variables are discussed in Chapter 4 leading to a revised parametric model of the noted design education system.

3.5.3 Experimental program – data collection and processing

This section of the thesis reports on the research activities required for gathering the empirical evidence about the current teacher views, aspirations and suggestions concerning the TAFE design education system in Australia, and to test the proposed system model based on the system’s parameters and their constituent variables. These activities are consistent with the phases of the design process and the proposed parametric model described earlier in Chapter 3.2. The overall research method is outlined in Figure 3.5.3.1 overleaf, as a graphic illustration of the procedures in the research methodology used by the researcher.
The steps involved in this research may be summarised in the following way:

**Step 1:** After a preliminary literature and information search, the research task was clarified and conceptualisation of the parametric model of the TAFE design education system took place. Theoretical frameworks that were to be used in the study were also explored.

**Step 2:** Based on the NVivo qualitative data analysis software, tree nodes were used to establish and to develop a preliminary parametric model of the TAFE design education
system. The interview questions were developed and were approved before contacts with TAFE Institutes were made.

**Step 3:** Data Collection was conducted by interviews with participants on location and fully transcribed. (See Appendix 1 for interview voice recording files and Appendix 2 for Interview Transcripts).

**Step 4:** Interview transcript data were classified using the NVivo software by coding under the current model parent and children tree node themes to populate the preliminary model of the TAFE design education system. (See ‘NVivo Models’ in Appendix 4, and note that NVivo software is required to read these, but is not essential for reading and understanding of this thesis, as they have been explained).

**Step 5:** The first analysis of the tree nodes was based on the relative frequency of occurrence and was conducted using a parsing process, and classified under the categories ‘Positive’ when the statements made about the system tended to be complimentary and ‘Negative’ when the statements about the system tended to be critical of the system. (See ‘Results of Recursive Parsing Tables’ in Appendix 3)

**Step 6:** Tree nodes from NVivo outputs were selected for further analysis using Leximancer software which added to a summative analysis. (See ‘Leximancer Maps’ in Appendix 5, and note that Leximancer software is required to read these, but is not essential for reading and understanding of this thesis, as they have been explained).

**Step 7:** Overall final analysis finding were integrated and summarised in tables to draw out key findings and recommendations. (See ‘Summary of Findings Tables’ in Appendix 6).

**Note,** some steps associated with data collection and analysis in this process were repeated a number of times, as required and as part of the review and refinement of the initial parametric model of the TAFE design education system, to more closely reflect how it is currently perceived by the design teaching practitioners. Recall that the overall research method is outlined by Figure 3.5.3.1 on the previous page.
3.5.4 Data Processing - generally

Presented and discussed in this section of Chapter 3 are the procedures that were used to transcribe and organise interview data in preparation for further processing and analysis using recursive parsing and qualitative data analysis software. Also listed are the locations of the fieldwork sites. Examples of interview transcript formats are tabled here to explain why there are different electronic versions of the transcript files. The following subsections of Chapter 3 will examine and discuss the data analysis as foreshadowed previously in the Preamble.

The raw data obtained during fieldwork visits at selected TAFE Institutes were recorded using a digital voice recorder. This fieldwork comprised eighteen interviews. In most cases, the one-on-one or focus group interviews were recorded in a single voice file. However, there are four interviews (Cooloola 1, Hobart 1 and 2, and Launceston), where each interview is made up of two separate voice files as indicated in Table 3.5.4.1 overleaf. The main reason for the separate voice files is because these interviews had to be briefly suspended due to unexpected interruptions outside the scope of the interviewer’s control. The duration of the interviews ranged from a low of 35 minutes up to a high of one hour and fifty seven minutes.
Table 3.5.4.1 List of fieldwork interviews and associated voice files in chronological order

<table>
<thead>
<tr>
<th>Location</th>
<th>Interview</th>
<th>File name</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sydney institute of TAFE, Enmore Design Centre, NSW, Sydney</td>
<td>Focus group</td>
<td>EM_04111000.MSV</td>
<td>Nine participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 52 min</td>
<td></td>
</tr>
<tr>
<td>2. Gordon Institute of TAFE, VIC, Geelong</td>
<td>Focus group</td>
<td>GO1_05041800.MSV</td>
<td>Interview 1, three participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 34 min</td>
<td></td>
</tr>
<tr>
<td>3. Gordon Institute of TAFE, VIC, Geelong</td>
<td>One-on-one</td>
<td>GO2_05041801.MSV</td>
<td>Interview 2, two participants, however SPEAKER 2 joined only for the last 2 minutes and 18 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 54 min</td>
<td></td>
</tr>
<tr>
<td>4. Swinburne University of Technology, TAFE Division, VIC, Melbourne</td>
<td>Focus group</td>
<td>SW_05041900.MSV</td>
<td>Two participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 48 min</td>
<td></td>
</tr>
<tr>
<td>5. Box Hill Institute of TAFE, VIC, Melbourne</td>
<td>Focus group</td>
<td>BH_05042000.MSV</td>
<td>Eight participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 49 min</td>
<td></td>
</tr>
<tr>
<td>6. Institute of TAFE Tasmania, Inveresk Campus, TAS, Launceston</td>
<td>Focus group</td>
<td>LA1a_05042100.MSV</td>
<td>Two participants. The interview was conducted over two sessions with a short break between sessions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LA1b_05042101.MSV</td>
<td>Duration 1hr 23 min</td>
</tr>
<tr>
<td>7. Institute of TAFE Tasmania, Clarence Campus, TAS, Hobart</td>
<td>One-on-one</td>
<td>HO1a_05042600.MSV</td>
<td>Interview 1, one participant, however due to alarm noise the interview had to be relocated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HO1b_05042601.MSV</td>
<td>Duration: 1hr 17 min</td>
</tr>
<tr>
<td>8. Institute of TAFE Tasmania, Clarence Campus, TAS, Hobart</td>
<td>One-on-one</td>
<td>HO2a_05042602.MSV</td>
<td>Interview 2, one participant, however the interview was interrupted by a phone call</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HO2b_05042603.MSV</td>
<td>Duration: 43 min</td>
</tr>
<tr>
<td>9. Southbank Institute of TAFE, Morningside Campus, QLD, Brisbane</td>
<td>Focus group</td>
<td>MO1_0505400.MSV</td>
<td>Interview 1, three participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 7 min</td>
<td></td>
</tr>
<tr>
<td>10. Southbank Institute of TAFE, Morningside Campus, QLD, Brisbane</td>
<td>One-on-one</td>
<td>MO2_0505401.MSV</td>
<td>Interview 2, one participant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 37 min</td>
<td></td>
</tr>
<tr>
<td>11. Sunshine Institute of TAFE, Cooloola Campus, QLD, Nambour</td>
<td>Focus group</td>
<td>CO1a_0505600.MSV</td>
<td>Interview 1, three participants, however the interview was briefly interrupted after 7 min and resumed shortly after</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CO1b_0505601.MSV</td>
<td>Duration 1hr 57 min</td>
</tr>
<tr>
<td>12. Sunshine Institute of TAFE, Cooloola Campus, QLD, Nambour</td>
<td>One-on-one</td>
<td>CO2_0505602.MSV</td>
<td>Interview 2, one participant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 35 min</td>
<td></td>
</tr>
<tr>
<td>13. Central TAFE, City Campus, WA, Perth</td>
<td>Focus group</td>
<td>WA_05072501.MSV</td>
<td>Two participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 18 min</td>
<td></td>
</tr>
<tr>
<td>14. Central TAFE, Leederville Campus, WA, Perth</td>
<td>Focus group</td>
<td>LE_05072600.MSV</td>
<td>Eight participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 9 min</td>
<td></td>
</tr>
<tr>
<td>15. SA TAFE, Croydon Park Campus, SA, Adelaide</td>
<td>Focus group</td>
<td>CR_05072800.MSV</td>
<td>Five participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 37 min</td>
<td></td>
</tr>
<tr>
<td>16. SA TAFE, Tea Tree Gully Campus, SA, Adelaide</td>
<td>Focus group</td>
<td>TT_05072900.MSV</td>
<td>Three participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 3 min</td>
<td></td>
</tr>
<tr>
<td>17. RMIT, TAFE Division, VIC, Melbourne</td>
<td>One-on-one</td>
<td>RM1_05080300.MSV</td>
<td>Interview 1, one participant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 1hr 5min</td>
<td></td>
</tr>
<tr>
<td>18. RMIT, TAFE Division, VIC, Melbourne</td>
<td>Focus group</td>
<td>RM2_05080301.MSV</td>
<td>Interview 2, two participants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Duration: 46 min</td>
<td></td>
</tr>
</tbody>
</table>

The voice file recordings of all the interviews are stored in an accessible form on the DVD located in Appendix 1. The themes that emerged from these interviews, in relation to the proposed parametric model of the TAFE design education system, will be discussed in detail.
later in this chapter. The interview recordings were transcribed by the writer in the manner described previously in Chapter 3, mindful of the following caution:

“Transcribing involves translating from an oral language, with its own set of rules, to a written language with another set of rules. Transcripts are not copies or representations of some original reality; they are interpretive constructions that are useful tools for given purposes.”142 [89]

The transcript data are stored on the DVD located in Appendix 2. Transcribing the recorded interview data allowed the writer, as suggested by Frost and Stablein143 [91], to become closely acquainted with the views and aspirations of the design teaching practitioners who participated and expressed their opinions by “handling your own rat,” so to speak. In Appendix 2, there are eighteen transcript ‘Word’ documents in landscape format (see example in Table 3.5.4.2 overleaf) to allow the data to be formatted and annotated in a separate column, thus communicating what actually occurred (interruption, phone calls, instances where it was difficult to make out what was said, and elapsed time from the start of the interview).

143 Frost, P. J., & Stablein, R. E., (1992), Doing exemplary research, Newbury Park, CA., Sage
<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCHER</td>
<td>OK let’s look at the first question dealing with curriculum development side of practice. What are the current underpinning philosophies or education theories that influence the curriculum development in the VET context? And do they distinguish it from the other education practice? In other words is there a strong philosophy that ...emerges?</td>
<td>Start 00:00:00</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>It could be perceived as a philosophy that students are ready to get into the workplace and train for it.</td>
<td></td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>Yes. So does that mean that we are driven by employment requirements?</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Well that is the underlying perception in the public. I don’t know if that’s happening.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>In effect it is very driven by employability.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Yes. Well I have misgivings about the curriculum in that context.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 3</td>
<td>So our powers that be make it very clear the curriculum’s architectures are defined by industry and we can have, you know, our little say, but it is driven directly by industry and we can put our hand up and contribute through consultation and make a little speech…and that’s always been there…</td>
<td>Inaudible interjection (00:01:55)</td>
</tr>
</tbody>
</table>
The purpose of transcribing the data in this way was to be as accurate as possible, taking into consideration the pragmatic method adapted in this research. The full transcripts adopted spoken oral language rules rather than the written language rules. This was done to capture and communicate something of the actual utterances and thinking of the interviewees. Therefore, the transcripts of interviews included “ums”, “mms” and the like, including repetitions as they may indicate emphasis, recall something, or some concerns or hesitation about the topic being discussed. Occasionally, words written in italics were included in the transcript to indicate the writer’s conjecture as to the relevant spoken word that was proving difficult to translate from the voice recording, but which would fit within the syntax and context of the rest of the statement. Occasionally, other comments made by the writer during transcription were also included in the ‘Comments’ column to highlight important issues or significant statements. Whenever names of participating interviewees or other persons were mentioned, these names were removed from the transcript and replaced with (name withheld).

Later, in this analysis it was found necessary to re-format the transcripts to remove the table format noted above before importing that transcript data into the NVivo program. Text imported into the NVivo program can include most of the features of a word processed document and although there are no specific formatting requirements, Bazeley\textsuperscript{144} [92] recommended the addition of styled headings to break the document up into labelled passages. As the interviews were semi-structured, the speaker’s code names were adopted as the ‘Heading 2’ style, (i.e., a subheading) to separate the statements made in turn by different speakers in all the transcript documents imported into NVivo.

Figure 3.5.4.1 shows the list of the transcripts in text form with line numbers and styled headings (Heading 2 style), that were then imported (without the table format) into the Nvivo7 program for coding and analysis purposes.

\textsuperscript{144} Bazeley, P., (2007), \textit{Qualitative data analysis with NVivo}, Sage, London, UK
Figure 3.5.4.1 List of full interview transcript without tables with text format and styled headings
Note the filename change, (for example: to SWIN TAFE_txt.doc from the previous filename SWIN TAFE_interview.doc) that distinguishes the two transcript formats. The transcripts in the “_txt.doc” format also include line numbers for convenient referencing. This formatting procedure is clarified further below:

As an example of how transcribing was done prior to data analysis, presented below (in Tables 3.5.4.3 to 3.5.4.6 on following pages) are four extracts from the full transcriptions which were coded and related to the parameter ‘ATTITUDES’ and the related constituent variable ‘Training’. These extracts relate to focus group interviews conducted during fieldwork at Box Hill TAFE Institute, TAFE South Australia - Croydon Park Campus, Southbank TAFE - Morningside Campus and Western Australia TAFE, Perth Central Campus. They represent a sampling of views and opinions of the TAFE design education practitioners related to the parametric variable ‘Training’, as they were expressed and recorded during the interviews. In this research, ‘Training’ refers to TAFE training characteristics and values as opposed to those usually associated with higher education or secondary school education.
Table 3.5.4.3: Edited extract from full interview transcripts from the Box Hill TAFE interview related to the parameter ‘ATTITUDES’ and the constituent variable ‘TRAINING’

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
</table>
| BOX HILL TAFE | **RESEARCHER**<br>So is it *(training)* becoming more academic or less academic or staying very much employment focused?  
**SPEAKER 5**<br>No. I would say it’s essentially themed for skill. It’s been about skills and product. And now ……it’s been very important and any designer who’s worked even for a short period of time in TAFE, or even a long period will, they’ll all agree that the *(design)* process is essential. Understanding what it is that you are trying to solve. The problems….., the skills and the tools that you’ll use. But there is less of what you would call the reflective or research, reflective based process. Unless you get to the higher end diploma level. Which is where we’re *(delivering)* in TAFE.  
**SPEAKER 6**<br>And that’s been created largely by the introduction of Training Packages, without a doubt.  
**SPEAKER 5**<br>Certainly that has influenced it immensely.  
**SPEAKER 6**<br>A lot of practitioners just haven’t come to terms with the change from a curriculum-based delivery to a Training Package.  
**SPEAKER 5**<br>Yes, they’re struggling with it.  
**SPEAKER 6**<br>Because the Training Package, just as you’ve said before, just leaves it so wide open. And the Training Package, if you look at curriculum-based programs, they were largely designed with large inputs from educational practitioners. But the Training Packages weren’t necessarily. And therefore, that movement from a curriculum-based approach to a competency, industry-based approach, where the competencies were written by people in industry that might not have had an educational background *(is a problem)*.  
And I think you’re right, I think the research aspects of the, of our programs have diminished.  
**SPEAKER 7**<br>The Training Packages, they’re written about outputs, whereas curriculum is written about inputs.  
**SPEAKER 5**<br>And also about the way we’re measured …. I mean, the expectation within TAFE is that you’re preparing people for not necessarily further education. It’s *[there as a pathway]*. There’ no doubt it’s still there, but *[there is an increasing expectation that you’re getting students ready for work …from a certificate 2 and beyond. And essentially, we will be measured in some wonderful, economically rationalist way. Success rates will be measured in terms of destination and work where those students go]….  
**SPEAKER 6**<br>And it has put back articulation to university by a hundred years!  

(00:15:52)**Interjections:**  
**SPEAKER 7**<br>Well the whole training package….  
**SPEAKER 6**<br>And I would say they’ve weakened.
In the first example in Table 3.5.4.3 above, the main views being expressed by the focus group interview participants from Box Hill TAFE, Melbourne, Victoria, are that:

- TAFE training is now mainly skills focused as result of the industry-based competency approach.
- TAFE training should strive to achieve a balance between developing practical skills as well as relevant research and reflection based cognitive development to support functional and effective industry employees, particularly at the diploma and advanced diploma levels.
- The introduction of nationally industry endorsed Training Packages has influenced TAFE training significantly and caused some teachers to be struggling to come to terms with their implementation.
- Vocational education practitioners were not consulted enough during the development of Training Packages.
- Some educational aspects of training outcomes, including the research aspects have been diminished because now the primary focus is on preparing students for entry into employment at all AQF levels normally associated with the TAFE system.
- Successful employment of TAFE graduates is now being used as a performance level measure indicator.
- Another consequence is that articulation pathways have been affected by the perception that the universities now give less recognition for Training Packaged based qualifications than they used to before the introduction of training Packages.

The second example, in Table 3.5.4.4 overleaf, from Croydon Park TAFE in Adelaide, South Australia, recalls some of the comparisons that were being made between TAFE and university graduates during inter-sectoral discussions. Participants in this focus group discussion pointed out that:

- There was agreement within the two education sectors that TAFE graphic design graduates possessed very strong technical abilities and therefore were employable.

However, it was also pointed out by one of the participants in this focus group interview, who has had both university and TAFE teaching as well as industry experience that:
There are only a few exceptionally talented TAFE graduates who can work under minimal supervision within the commercial design studio setting, and

The majority of TAFE graduates working under limited supervision provide a supporting and contributing role in the studio while they adjust to the workplace through on-the-job-learning experiences.

Table 3.5.4.4: Edited extract from full interview transcripts from the Croydon Park TAFE interview related to the parameter ‘ATTITUDES’ and the constituent variable ‘TRAINING’

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
</table>
| CROYDON PARK TAFE   | **SPEAKER 2**  
It’s really interesting. An excursion we had this Monday with industry. There was a comparison made with a TAFE graduate and a university graduate. And the TAFE graduate (it) was pointed out to us clearly by people sitting there, and agreed to, was that the technical ability of the TAFE graduate was exceptionally strong. They can walk into any studio and they knew the programs, they knew the systems, they knew how to put together the artwork to get the print. They knew what to do to take it to the final printer and hand it to them. With university students, they had tremendous design ability but had very little, limited experience with the technical and they didn’t know the type of processes to go through to get it to take to the printer. We have (name withheld, SPEAKER 3) with us who has been in university sector teaching for a while and I guess he can have some input to this as well because there is a different philosophy in that respect from what the TAFE is trying to do probably.  
**RESEARCHER**  
Yes that’s what I’m trying to pin down what it is in TAFE that we believe in that differentiates our practice from other practices in the other sectors. So if we could focus on that…  
**SPEAKER 3**  
Well I think from my point of view and what I’ve seen since I’ve been here three months, and prior to that I have been working in the university sector and it’s exactly what SPEAKER 2 (name withheld) said, and what industry is saying as well, and me as a practitioner of graphic design over the last ten years running my own studio. It’s been glaringly obvious that the students who have been able to come into the studio setting and survive with limited supervision, and generally what would happen is, any student or any graduate, university or TAFE, would come out and they wouldn’t take on, unless they were an exceptionally talented person and had all the skill levels to work on. And that means that there’s only one or two every year that come out like that. The new graduate’s role is fairly much fitting into the studio, and to do as much as they can. And generally, it doesn’t mean that they’re running big ad campaigns and being a designer. They are fitting in and being supportive.  
**RESEARCHER**  
They are contributing to the teamwork. | (00:25:39) |
In the next example in Table 3.5.4.5 below from Morningside TAFE, Brisbane, Queensland, the views expressed indicate that:

- TAFE training provides a more nurturing environment to students.
- TAFE training is changing towards developing a separate TAFE identity while still maintaining a supportive setting due to smaller class sizes and a higher level of teaching staff and student contact.
- TAFE training provides more opportunities for developing closer student-teacher relationships/partnerships.

Table 3.5.4.5: Edited extract from full interview transcripts from the Morningside TAFE interview related to the parameter ‘ATTITUDES’ and the constituent variable ‘TRAINING’

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
</table>
| MORNINGSIDE TAFE Interview 2 | **RESEARCHER**  
Do you think that VET teaching practice is currently different and evolving in isolation from other teaching practices, like in schools or at university?  

**SPEAKER 1**  
Oh, I think it’s a different approach. Umm, yes I think we’ve changed. Well I’m sure we’ve changed. Obviously we’ve changed a lot. But we’ve changed a lot from being more of a nurturer. Because we were the ones that kids came to when they left school and they couldn’t get into university. So we became the nurturer. But now we’re more an identity in our own right. So I think the strategies are being looked at a lot more strongly than they ever were. But I still think we’ve got different approaches.  

**RESEARCHER**  
And what would you say about the main differences or approaches?  

**SPEAKER 1**  
Well I suppose one of the main differences is class size and contact with teachers. Students get a lot more contact with teachers than they certainly do at universities. But it’s more. It’s just a difference of more almost family orientated thing. | Pensive. |
In the last example in Table 3.5.4.6 overleaf, from WA Central TAFE, Perth, Western Australia, the main view expressed here is that:

- TAFE training has a strong vocational focus leading to a high level of good employment outcomes.
- There is a high level of student satisfaction with the training despite some challenges arising from the need to keep up with changing technologies.
- TAFE training has a good standing with the local industry that supports and contributes to the training.
- Industry practitioners work periodically, every few years, in TAFE as casual/sessional teachers.

However, at this stage, the above extracts represent only a small sample of the practitioners’ views about the TAFE design education system. Further, a more comprehensive analysis of the full transcripts, using the NVivo qualitative data analysis program is discussed in detail in the following Section 4.4 of Chapter 4.
Table 3.5.4.6: Edited extract from full interview transcripts from the WA Central TAFE interview related to the parameter ‘ATTITUDES’ and the constituent variable ‘TRAINING’

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
</table>
| WA CENTRAL TAFE| **RESEARCHER**  
But just as a summary how would you best describe the best feature that’s happening here with design teaching and training, learning?  
**SPEAKER 1** It’s difficult for me because I’m only just learning my areas inside out and been here a short while. If you ask the lecturers they would say it’s the fact that despite lots of difficulties with procedures otherwise over the last few years, when they do our student outcome vocational employment type things this area comes up very high. So despite whatever goes on in the force they are still being employed. Which I suppose from the Department of Training aspect is why they fund us. Student satisfaction in general terms I suppose is quite high. There are some things that niggle away because of the changes in technology. We’re looking at, I mean can we afford to keep providing and up dating and so forth. So a bit of dissatisfaction in that. Generally speaking, I’d say, that in SPEAKER 2’s (name withheld) area particularly, we’re very well equipped. So I think that our actual ….  
**SPEAKER 2** Well we’re never that well equipped, I mean we could always get better.  
**SPEAKER 1** No, but in terms of facilities and things like, that we’re fairly well equipped. Although we actually when you get down into it, there’s a lot more stuff that we really require, to do a better job. But you know you can always have the flag out there waving for more stuff. So I would say still that the outcomes of what they’re getting are still giving them jobs. So in terms of, and (we’re) turning out very creative students.  
**SPEAKER 2** I think we do have a fairly credible standing with the local industry as well. I know that to be the case.  
**RESEARCHER** What do you put that down to? What’s the reason for that?  
**SPEAKER 2** The fact that we employ half the local industry is probably part of it.
Table 3.5.4.6: Edited extract from full interview transcripts from the WA Central TAFE interview related to the parameter ‘ATTITUDES’ and the constituent variable ‘TRAINING’ continued…

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCHER</td>
<td>So it’s the casual teacher input?</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>So they come in and they see what we do.</td>
<td></td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>The currency of it.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Yes.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>The currency of it, the passion and commitment (that) our in-house staff have. The attitudes of the students themselves, who are keen to succeed. There are selected…</td>
<td></td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>The relationship building that happens between students and staff?</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Yes and we do have on staff people who come back and been out for five or six years and come back and there’s this constant re-feeding back into the system I suppose.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>That certainly.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Not exclusively, but there’s a bit of that that goes on.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>Because of the student-teacher ratio there’s no question that the end of say a three-year period that the lecturing staff have formed you know quite a strong relationship with the students. Care for them, care about them, care about what happens to them. You know students come back after a couple of years to let us know how they’ve gone.</td>
<td></td>
</tr>
</tbody>
</table>
3.5.5 NVivo software program and qualitative data analysis

NVivo\textsuperscript{145} \cite{Bazeley2007} is a qualitative data analysis software program developed to assist researchers undertaking analysis of qualitative data, and it supports a wide range of methodological approaches. As discussed previously, qualitative methods are suitable where a detailed understanding of a system, process or experience is required to determine the nature of the issues being investigated, and the available non-numeric information that is to be interpreted is unstructured or semi-structured. The NVivo software used in this thesis supports analytical tasks in the following ways:

- Data management – to organise and keep track of the data and related records.
- Conceptual ideas management – to organise and access concepts and theoretical knowledge generated during the study as well as associated data.
- Query data – to ask simple or complex questions about the data and to retrieve from the database relevant information to obtain the answers.
- Visual modelling – to show cases, ideas and concepts being constructed from the data and the relationships between them using models and matrices.
- Report from the data – to use the qualitative data and associated information and report on the ideas and knowledge developed from them.

The use of the computer software assisted the writer to establish a more methodical and rigorous approach to data analysis, as it was more effective in finding practically all coded instances of a concept than by using a manual procedure\textsuperscript{146} \cite{Gilbert2002}.

Gilbert\textsuperscript{147} \cite{Gilbert2002} states that, although computer tools are becoming more acceptable, as they “…extend and qualitatively change human capabilities”, issues have been raised by those who remain sceptical about their use. Technology development is apparently impacting on the way research and data analysis is conducted. For example, the widespread use of voice recorders (as used by the writer) in interviews has changed both the level and the detail that can be captured by raw data material for analysis. The design of the software can influence the

\textsuperscript{145} ibid
\textsuperscript{146} Bazeley, P., (2007), \textit{Qualitative data analysis with NVivo}, Sage, London, UK
effectiveness of the use of the data coding tool; however the reliability of obtained results also
depends on the skills of the user and there is some risk of making errors without the novice
user realising that they have occurred\textsuperscript{148} [93]. The writer, in this case, completed several
workshops in order to develop competency in using the software for the purposes of detailed
multi-coding of data, coded data analysis, extraction and visual modelling.

Other concerns discussed by Bazeley [92] include:

- Potential distancing of researchers from their data by computers.
- The dominance of code and retrieve methods over other analytic processes.
- The perception that the use of computer tools will make the research more
  quantitative rather than qualitative, and
- The misleading perception that only grounded theory methods are supported by
  computers.

Richards\textsuperscript{149} [94], suggests that more recent software has been designed on the basis that
researchers need both closeness, which is a familiarity and nuanced appreciation of data, as
well as distance for abstraction and synthesis. In this research, these aspects were utilised by
the writer to build on the existing familiarity developed during the transcription of the
interview recordings, and to conceptualise the initial TAFE design education system model as
well as its refinement (through recursive parsing) in response to the data analysis.

Using NVivo software made the interactive coding of data more efficient and allowed a wider
exploration of ideas associated with the parameters and constituent variables by comparing
data from different sources. Richards also pointed to the problem associated with the tendency
to code rather than engage in other analytic and interpretive activities, which can bias the way
qualitative research is done\textsuperscript{150} [94]. In this research, emphasis has been placed on reading and
re-reading, and parsing the text (using a recursive method) in order to identify ideas and
themes. This allowed the making of links and comparisons between passages from different
sources, and to identify the positive and negative views/ comments of the participants in

\textsuperscript{148} ibid
\textsuperscript{149} Richards, L., (2002), \textit{Qualitative computing – a methods revolution?}, International Journal of Social Research
Methodology, Vol 5, no:3, p 263-276
\textsuperscript{150} ibid
relation to their perceptions about the TAFE design education system as well as specific issues and suggestions.

Furthermore, it was found that the use of the software tools did not dominate the analysis process once the coding had been completed, and data questioning commenced using NVivo together with more conventional approaches of parsing, summarising and tabulation.

Finally to recap, as noted earlier, the NVivo qualitative data analysis software was first used to explore and to generate an initial parametric model of the TAFE design education system. It was then also used to interactively code imported documents\(^ {151}\) (transcript data) from the fieldwork. As noted, this fieldwork involved one-on-one and focus group interviews with TAFE design education practitioners. The collected interview transcripts were coded into tree nodes\(^ {152}\) associated with the initial proposed parametric model of the TAFE design education system. The coding process identified the sources\(^ {153}\) and cases\(^ {154}\), and the number of references\(^ {155}\) related to the concepts. As coding progressed new potential concepts/themes emerged and were created as free nodes. These free nodes were then progressively and purposefully incorporated into a revised comprehensive parametric model structure of the TAFE design education system, either as parent or child nodes forming additional tree nodes, until all the interview transcript text coding was completed. In other words, the initial model proposed in Chapter 3 was populated and expanded with the experimental data obtained from the fieldwork. This is illustrated later in Chapter 4, in Figures 4.2.2 to 4.2.6.

As noted, most of the interview transcript data coding was completed using the NVivo7 version of the program. The research project results were then exported into the current NVivo8 version of the program when the version 7 licences expired, and the program was

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\(^{151}\) **Documents**: in this research transcripts of interviews in the form of Word documents, however other forms of source documents can be imported, for example audio, visual images and video materials

\(^{152}\) **Tree nodes**: in NVivo nodes store coded text, and this research tree nodes are structured parent nodes and their children in contrast to free nodes which are not structured in any way

\(^{153}\) **Sources**: in NVivo refers collectively to research material and this is where imported data is stored

\(^{154}\) **Cases**: in NVivo this refers to a node that holds attribute data about individual participants who were interviewed during this research

\(^{155}\) **References**: in NVivo this indicates the number of coded text references related to a specified concept theme or idea
upgraded in 2009. The results and figures which follow have been sourced from the current NVivo8 version of the qualitative data analysis software program.

Once the data documents were in the appropriate format they were imported for coding and qualitative discourse analysis, as described below. The transcripts, in turn, were coded by the writer against the constituent variables of each for the parameters of the initial proposed model of the TAFE design education system. The parameters and associated constituent variables were defined as shown in Table 3.5.5.1.

<table>
<thead>
<tr>
<th>Tree Node</th>
<th>Definition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum Development</strong> (Parameter)</td>
<td>The set of tasks associated with identifying students’ and other stakeholders’ training needs and developing relevant and appropriate entry requirements, study pathways, and training program delivery and assessment strategies.</td>
<td>Parent node</td>
</tr>
<tr>
<td>Training Package (TP) based (Constituent variable)</td>
<td>All training programs based on units of competency and leading to an AQF qualification or Statement of Attainment that fulfil the requirements of specific nationally endorsed industry Training Packages.</td>
<td>Child node</td>
</tr>
<tr>
<td>Non -TP Accredited (Constituent variable)</td>
<td>All training programs based on specific local enterprise units of competency or learning outcome modules (where no Training Package units of competency exist, or can be easily mapped) leading to an AQF qualification.</td>
<td>Child node</td>
</tr>
<tr>
<td>Study Pathway (Constituent variable)</td>
<td>The program structure that shows entry pre-requisites, exits and articulation options for further study in the field of study.</td>
<td>Child node</td>
</tr>
<tr>
<td>Structure (Constituent variable)</td>
<td>The educationally sound arrangement and sequencing of training program unit/module delivery that shows appropriate pre-requisites and co-requisites and electives.</td>
<td>Child node</td>
</tr>
<tr>
<td>Entry Requirements (Constituent variable)</td>
<td>The set of pre-requisites for entry into a training program based on one or more, or all of the following: previous scholastic achievements, relevant experience, employment, maturity and/ or selection criteria.</td>
<td>Child node</td>
</tr>
</tbody>
</table>
Table 3.5.5.1 Definitions adopted in this study for the tree nodes in the initial proposed parametric model of the TAFE design education system continued….

<table>
<thead>
<tr>
<th>Tree Node</th>
<th>Definition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student/Staff Selection</td>
<td>The processes used to recruit and admit students into training programs. The processes used to recruit and engage teaching staff to deliver training programs.</td>
<td>Parent node</td>
</tr>
<tr>
<td>School Leavers (Constituent variable)</td>
<td>Students who commence TAFE programs after completing or leaving secondary school education and who have not gained any significant relevant industry work experience.</td>
<td>Child node</td>
</tr>
<tr>
<td>Mature Age (Constituent variable)</td>
<td>Students who commence TAFE programs, are at least twenty years old in the year they start studies, and who may or may not have gained relevant industry work or tertiary study experience.</td>
<td>Child node</td>
</tr>
<tr>
<td>Teacher Qualifications</td>
<td>Required training/academic qualifications and relevant industry work experience to teach in a given vocational education and training field.</td>
<td>Child node</td>
</tr>
<tr>
<td>Innovative Leadership</td>
<td>Demonstrated characteristics of teachers, program coordinators and education program managers that lead to effective and innovative training practices and outcomes.</td>
<td>Child node</td>
</tr>
<tr>
<td>Program Delivery (Parameter)</td>
<td>The range of strategies and approaches used to conduct training programs in a variety of ‘off-the-job’ and ‘on-the-job’ settings.</td>
<td>Parent node</td>
</tr>
<tr>
<td>Integrated Project-based</td>
<td>A method of training that uses projects and problem solving processes as a framework for training that holistically integrates underpinning skills and knowledge development to achieve outcomes that are greater than the sum of the individual constituents.</td>
<td>Child node</td>
</tr>
<tr>
<td>Excursions (Constituent variable)</td>
<td>A range of off-campus activities aimed at expanding students’ perceptions and experiences of the context, technologies and practices associated with a particular industry field.</td>
<td>Child node</td>
</tr>
<tr>
<td>Student-centred (Constituent variable)</td>
<td>An approach that facilitates learners to become active negotiators, contributors and participants in constructing their own learning to meet required and their individual needs and interests in a field of study and not merely the receivers of other peoples’ (teachers’) knowledge\textsuperscript{156} [23].</td>
<td>Child node</td>
</tr>
<tr>
<td>Teacher-centred (Constituent variable)</td>
<td>An approach that places the teacher at the centre of transmitting what and how the learner will learn and develop required knowledge and skills, and offers only very limited scope for learners to construct their learning.</td>
<td>Child node</td>
</tr>
<tr>
<td>Workplace (Constituent variable)</td>
<td>An approach that integrates training that is partially or fully conducted in the workplace to meet existing and emerging work demands.</td>
<td>Child node</td>
</tr>
</tbody>
</table>

Table 3.5.5.1 Definitions adopted in this study for the tree nodes in the initial proposed parametric model of the TAFE design education system continued.....

<table>
<thead>
<tr>
<th>Tree Node</th>
<th>Definition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment (Parameter)</td>
<td>A set of strategies and practices associated with the formative and summative assessment tasks and processes that lead students to producing the required evidence to demonstrate required competence, learning outcome achievement and level of performance, and the evaluation of this evidence before making a professional judgement about the adequacy of the evidence and the result.</td>
<td>Parent node</td>
</tr>
<tr>
<td>Competency ungraded (Constituent variable)</td>
<td>Competency based assessment practices where the evidence provided is used to determine if the student is ‘competent’ or ‘not yet competent’ and the result is recorded as a ‘ungraded PASS’ or ‘FAIL’ (NYC)</td>
<td>Child node</td>
</tr>
<tr>
<td>Competency graded (Constituent variable)</td>
<td>Competency based assessment practices where if the student is assessed as ‘Competent’ it is possible to identify additional performance level criteria that can be used to award grades beyond an ‘ungraded PASS’ – for example criterion referenced PASS, CREDIT, DISTINCTION and HIGH DISTINCTION</td>
<td>Child node</td>
</tr>
<tr>
<td>Feedback to students (Constituent variable)</td>
<td>Oral and/ or written feedback provided to students by assessors continuously during formative assessment episodes or as summative assessment feedback at the end of a designated period of learning and assessment.</td>
<td>Child node</td>
</tr>
<tr>
<td>Feedback to students (Constituent variable)</td>
<td>Oral and/ or written feedback provided to students by assessors continuously during formative assessment episodes or as summative assessment feedback at the end of a designated period of learning and assessment.</td>
<td>Child node</td>
</tr>
<tr>
<td>Reflection and Evaluation (parameter)</td>
<td>Activities which are usually associated with reviewing and evaluating episodes of training and assessment to understand their effectiveness and to identify areas for improvement or change.</td>
<td>Parent node</td>
</tr>
<tr>
<td>Stakeholder feedback (Constituent variable)</td>
<td>Feedback obtained from stakeholders other than students on a regular or as needed basis with regard to the relevance and effectiveness of the training that was provided.</td>
<td>Child node</td>
</tr>
<tr>
<td>Quality Assurance process (Constituent variable)</td>
<td>The set of policies, guidelines and practices associated with obtaining evidence of compliance with required standards, evaluating the effectiveness of the TAFE education system, and identifying areas for improvement.</td>
<td>Child node</td>
</tr>
<tr>
<td>Student surveys (Constituent variable)</td>
<td>Standard or modified student satisfaction surveys usually conducted at the end of an assigned period of learning in a unit or module, or at the completion of a program.</td>
<td>Child node</td>
</tr>
</tbody>
</table>

These definitions are important as they formed the basis for coding the transcript data against the TAFE design education system constituent parameters and their variables as part of the noted discourse analytic method used. At this point, it is worth noting that, as stated before in Chapter 3, social research commonly includes studies with closed and open-ended questions to learn about participants’ beliefs, attitudes or experiences. Open ended questions can yield useful information in situations where there is a need to explore complex issues or characteristics that usually do not have a finite or fixed set of responses. Systematic methods for analysing written narrative obtained from semi-structured interviews and other qualitative data collection methods have been worked on by others (e.g., Bernard 1994; Carey 1994;
Gorden 1992; Miles and Huberman 1994 and Patton 1990). Critics often argue that qualitative analysis procedures are often too subjective and that these analyses are not replicable, thus making them less credible\textsuperscript{157} [100]. To address this, steps were taken to ensure a strong Intercoder agreement in qualitative data analysis. The Tuberculosis study referred to here, (by Carey, Oxtoby and Carloni\textsuperscript{158} [101]), described the methods used by those researchers to strengthen and measure the replicability of the analysis of the open-ended interview responses. It appears that their methods relied mainly on:

- careful research design with a systematic data management and analysis plan
- logical organisation of data files
- consistent coding instructions and procedures
- using the Pareto principle\textsuperscript{159} [36] (as interpreted by the writer) to select and focus on analysing approximately the 20\% of the most significant and widely shared views of respondents in relation to a topic to act as a data subset and
- comparing overall interpretation of text segments rather than looking for agreement in using individual codes

In this thesis as noted previously in Chapter 3, the above guidelines were implemented and all the coding was completed by the writer using NVivo software in a consistent manner, supervised and in consultation with the research supervisor to minimise coding discrepancies. This was achieved by following closely the developed definitions and the parametric model framework of the TAFE design education system to manage and analyse the data. The fact that the writer of this thesis was actually interviewing design education practitioners who were essentially peers, meant that the interviews can be viewed as “serious speech acts”. As such, they formed a part of institutionalised talk where the participants contribute informed opinions in the quest of information for the purposes of discourse analysis. This is contrasted, according to Talja\textsuperscript{160} [95], with what normally passes as “mundane talk” dominant in discursive social psychology and conversation analysis. The discourse analysis method, as presented by Talja,


\textsuperscript{159} Bonollo, E. (in press). \textit{Product design: a course in first principles}

was used to analyse the qualitative interview data taking into account that the participants’ interpretations were very context-dependent and variable, and this had implications for the use of interview data. It was found that the data revealed regular interpretive practices through which participants viewed actions, cognitive processes and other phenomena. When using the discourse analysis method, in this study the focus was not on the individual as the principal unit of analysis. The writer focussed on identifying cultural norms in participants’ descriptions and opinions in order to examine the TAFE design education phenomenon at a macrosociological level. Such a qualitative method required specific norms and guidelines for data analysis (see Table 3.5.5.1 for definitions described above).

It is argued by the researcher that the TAFE design education system, as a sub-system within the Australian VET system, represents a specific subculture with practice and linguistic norms. Using the discourse analysis method of qualitative research, the interview data were analysed as social texts to investigate the knowledge formation that influenced institutional practices. The nature of the interview discourse analysed in this research, examined “serious speech acts” in the form of institutionalised talk related to practices undertaken by a culturally coherent and informed group of TAFE design education practitioners.

Furthermore, in this thesis, discourse analysis was adopted because it allowed the researcher to study the practices of knowledge and meaning construction within a specific institution context to make clear the starting points of views held and expressed by the participants during the discussion of the TAFE design education system at a particular historical moment. In addition, it highlighted the way in which discourses can produce and transform social reality and evaluate the scope for making improvements to the noted above system.

When coding passages, the researcher’s questions and statements were sometimes included if a sequence of statements, made in turn, related to the relevant parameter or constituent variable under discussion. Statements that were made by interviewees were sometimes coded against more than one of the parametric model parameters or constituent variables, when those statements included information that was also relevant to another parameter or constituent
variable, respectively, as is shown in Figure 3.5.5.1 below which shows a highlighted part of the same transcript extract from the Box Hill focus group.

Note that in the following Figure 3.5.5.1, the detail view in the middle of the computer window display shows a fragment of the Box Hill interview transcript. The highlighted passages indicate that they have been coded. The column to the left of the detail view shows the coding density strip and the coloured coding strips corresponding to the relevant constituent variables or ‘cases’. A more detailed explanation of ‘cases’ will be provided below. In the NVivo qualitative data analysis software program, for any displayed part of the transcript, the darker is the coding density stripe, the higher is the number of nodes associated with parameters and constituent variables. In the noted column, the text in the box overlapping the darker part of the coding density strip, lists the parameters and the constituent variables that the coinciding highlighted section of the transcript was associated with during the coding process. (See the purple coding strip labelled ‘Teachers’ educational beliefs’).
Figure 3.5.5.1 Example of transcript passage coded using NVivo multiple coding in relation to the parameter ‘ATTITUDES’ and the constituent variable ‘resistance to reform’; ‘teachers’ educational beliefs’ and ‘training’; and the parameter ‘CURRICULUM DESIGN’ and the constituent variable ‘TP-based’
The Figure 3.5.5.2 overleaf, shows in the Left Hand (LH) top corner of the detail view that after coding was completed, the full Box Hill TAFE focus group interview transcript text has 11 coded passages, (references) that have been coded in relation to the constituent variable ‘training’. It can also be seen that these coded passages represent 12.80% of the full transcript text. A separate percentage is also shown for each coded reference related to the variable ‘training’. (Note Reference 1 and Reference 2 in the figure). Similarly, all the interview transcript data were coded using the NVivo software in relation to the proposed initial parametric model of TAFE design education.
Figure 3.5.5.2: NVivo display of Box Hill interview passages coded to the parameter ‘ATTITUDES’ and the constituent variable ‘training’
After the completion of coding of all the interview transcripts used in this investigation, as Figure 3.5.5.3 shown on page 146, it was found that the child tree node for the constituent variable ‘training’ contained coded text passages from 18 sources, (that is, all the interview transcripts used in this study), and 82 separate coded references, (that is, coded passages linked to this tree node).

Note that in Figure 3.5.5.3, we are looking at the list view that shows the parent tree nodes that represent the parameters that populate the model of the TAFE design education system. The tree node for the parameter ‘ATTITUDES’, is expanded to show its constituent variables.

Looking at the list view in Figure 3.5.5.3, note that the node “Training” outlined in the box, is significant because it contains 82 coded references from 18 interview transcript sources (based on the coding procedure used during the transcript analysis coding process). This makes the variable ‘training’ the second most important variable after the variable ‘Teacher’s educational beliefs’ which contains 98 references. Other significant variables were found to be ‘University’, (35 references from 15 interview sources), and ‘Teaching reform’ (36 references from 14 interview sources). The other less important variables in terms of their relative ranking were ‘resistance to change’; ‘education’ and ‘assumptions about TAFE’.

Although there were only two coded references in relation to the variable ‘Assumptions about TAFE’, it is interesting to note that one reference highlighted a positive view in terms of the common perception that TAFE does not prepare students for further study in higher education as is shown in the Table 3.5.5.2 below.

Table 3.5.5.2 Extract of data from Launceston TAFE coded and related to the parametric variable ‘Assumptions about TAFE’

| SPEAKER 1: | It’s interesting. The assumption was always there that that would need to be the case. But it actually isn’t the case and we’ve had students going through with a one-year off their degree and sometimes a year-and-a-half of a degree, and successfully going on to do an honours year. And we’ve also had as many students, we know, because we share this building with the university, we have as many students coming back the other way to pick up units with us. They don’t want the qualification, but they want some of the project work that goes with the development that they feel they need. And so it’s a two-way street between the organisations really. |

This reference suggested that the perception that TAFE does not prepare students for further study in higher education was not necessarily the case as many TAFE students are granted advanced standing, equivalent to one or one and one half years, for entry into degree courses.
This is further reinforced by the statement that just as many university graduates enrol in TAFE programs during or after completing university studies to undertake practical project work.
Figure 3.5.5.3 NVivo model parameter ‘Attitudes’ and its constituent variables
The second reference in Table 3.5.5.3 below, in relation to the variable ‘Assumptions about TAFE’, suggested that teachers were in a better position to know and have a broader view of industry training needs. This view was based on teachers’ own industry experience and observations. However, this was often not taken into consideration because the common perception was that TAFE teachers only teach, and would be unlikely to know much about industry training needs.

Table 3.5.5.3 Extract of data from Swinburne TAFE coded and related to the parametric variable ‘Assumptions about TAFE’

| SPEAKER 1 | …So I mean there’s a whole issue here about this predication to always refer to ‘what industry wants, industry get’, and I think there’s a large amount of furphy in that assumption that we always talk about intake and I think this, you know, I think there are many instances where teachers – the assumption about teachers is that that’s all they do. They can’t know about industry, (and) we’ve got to have someone tell them. I think teachers are often in a better position to get a broad overview of what the industry needs or is doing just by standing back and watching. I mean obviously asking. But, and a lot of teachers have had the experience, and still have the experience of current practitioners. And it’s a real feeling that institutions need to be, certainly TAFE especially; I think we expect the universities to be researchers and do all that, but I think this is downgrading of when TAFE is looked at. That they’re just providers for industry. |

The NVivo qualitative data analysis software also allowed the writer to describe the attributes of the participating interviewees as case nodes with values that indicated for each participating TAFE design interviewee the State they currently worked in, the main design discipline currently teaching, and what role/position currently was held in the institution. Figure 3.5.5.4 below shows a part of the list of ‘case nodes’ that were created to represent each individual participant in the fieldwork interviews. A more detailed explanation of case nodes follows the Figure 3.5.5.4.
Figure 3.5.5.4 Extract from NVivo – partial list of case nodes representing participants in focus groups and individual interviews
Figure 3.5.5.4 above shows, as an example, how each participant is created as a case with attribute values, and how by selecting a case all the transcript coded data associated with that participant can be displayed as individual segments or in the context of the full transcript as highlighted text. It also shows the total number of units of coded information for each participant. For example, when looking at the Box Hill TAFE cases it can be seen that out of the eight (8) participants SPEAKERS 5, 4 and 1 contributed more units of information, (in descending order), than the other participants. This is most likely due to the fact that they were design teachers, whereas SPEAKERS 2 and 3 were automotive and manufacturing trade teachers who were engaged in a joint project with the design teachers on developing a design based approach to teaching in those traditional trade apprenticeship areas at the Box Hill Institute of TAFE. It is also noted that SPEAKER 8 was not an intentional participant in the focus group. However, this participant was listed among the interview cases due to being included in the full transcript even though that participant only came in to draw the group’s attention to the fact that the room in which the interview was taking place was booked for another class. SPEAKERS 6 and 7 were digital media and design fundamentals teachers respectively; however they did not contribute to the discussion as much as their colleagues.

Figure 3.5.5.5 below shows an extract from the NVivo program outputs, for illustration purposes, that demonstrates how all the information provided by a particular participant, (in this instance Box Hill TAFE focus group SPEAKER 5) can be displayed separately. Note that the laughter attributed to SPEAKER 5 at the beginning, and the laughter from the others that follows the statement is taken to indicate agreements with the criticism made by SPEAKER 5.
Figure 3.5.5.5 NVivo window display showing CASES and an extract of coded passages attributed to SPEAKER 5 from the Box Hill TAFE interview, and coding density and coloured coding stripes.
Figure 3.5.5.5 also shows, in the Right Hand (RH) column, the coding density and the coloured most coded nodes or concepts representing the parameters and their constituent variables. As shown by the text in the box overlapping the coding density stripe, this interview transcript passage was coded in relation to the parameters model ‘ATTITUDES’, CURRICULUM DESIGN’ and ‘CURRICULUM DETERMINANTS’. It was also coded in relation to the linked constituent variables ‘Teachers’ educational beliefs’, ‘TP (Training Package) based’ and ‘Emerging training needs’. The statement made by SPEAKER 5 in this example, is critical of early versions of Training Packages that, like the first version of the TCF (Textile Clothing and Footwear) Training Package, were too broadly written and too inflexible. It was suggested by SPEAKER 5 that this was because these Training Packages mainly focussed on measurable/ observable technical skills development, and contained very little direct or indirect descriptions to address the cognitive development aspects of design thinking and design skills.

Figure 3.5.5.5 also shows at the top of the RH column, that some of the other transcript passages attributed to SPEAKER 5 have been coded in relation to variables ‘Teacher workload’ and ‘Quality assurance’ that are variable constituents of the parameter ‘ISSUES’. Similarly, there are coded transcript passages attributed to the SPEAKER 5 in relation to the constituent variable ‘School leavers’, which is a constituent of the parameter ‘STUDENT QUALTIES’ and the variable ‘Training’ which is a constituent of the parameter ‘ATTITUDES’.

Note that in this thesis, participant case attribute values, for the following attributes, were used and recorded with the data:

1. STATE – the State in which TAFE Institute/ interview was recorded
2. DESIGN DISCIPLINE – the specialisation the participant is mainly engaged in teaching
3. ROLE – the position held as an indicator of responsibilities/ perspectives

This is illustrated in Figures 3.5.5.6 and 3.5.5.7 overleaf, and taken from the NVivo program.
Table 3.5.5.4 below, shows the distribution of the case attribute values that describe the range of design disciplines that was represented by the sample of interview participants at the TAFE Institutes’ locations. As can be readily seen, there were a significant number of participants
working in graphic design, digital media and building design/drafting areas. The other disciplines were also represented at lower numbers.

Table 3.5.5.4: Distribution of Case Attribute values for the attribute ‘DESIGN FIELD’

<table>
<thead>
<tr>
<th>DESIGN FIELD</th>
<th>LOCATION</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unassigned</td>
<td>BH 3 CO 2 CR 4 GO 1 HO 1 LE 2 MO 8 RM 1 SW 1 TT 1 WA 11</td>
<td></td>
</tr>
<tr>
<td>3D Animation</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Building design/drafting</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Design fundamentals</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Digital media design</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Fashion design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Graphic design</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Interior decoration/design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jewellery design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Photography</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Product design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Stage prod design</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Visual arts &amp; crafts</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

Also it can be seen at the top of the table, that there was also a significant number of participants who were not assigned a design discipline because they represented senior management positions, and it was not possible or appropriate to specify a discipline as they were responsible for training delivery for a number of design disciplines.

This is illustrated by Table 3.5.5.5 below, which shows the distribution of case attribute values that describe the range of roles represented by the sample of interview participants at the TAFE Institutes. Participants directly involved in the teaching of design programs in the participating Institutes of TAFE made up the majority of participating interviewees. When the roles of ‘TEACHER’, ‘HEAD TEACHER’, ‘COORDINATOR’, ‘TEAM LEADER’, ‘SENIOR HEAD TEACHER’, ‘HEAD of DEPARTMENT’, and ‘EDUCATION
MANAGER’ were aggregated these roles were represented by forty nine (49) interview participants out of a total sample of fifty seven (57). It is generally accepted in the VET sector that staff members holding such positions are expected to teach a full or reduced teaching load allocation. The other eight (8) participants indicated that they held positions within their Institutes that usually did not require them to teach and their role were predominantly to provide educational leadership and management. There was only one (1) inadvertent interview participant (SPEAKER 8 at Box Hill TAFE) that, as already mentioned, did not contribute information that was highly relevant to this study.

Table 3.5.5.5: Distribution of Case Attribute values for the attribute ‘ROLE’

<table>
<thead>
<tr>
<th>ROLE</th>
<th>LOCATION</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>BH 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CO 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CR 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EM 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GO 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HO 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LA 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LE 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MO 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RM 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SW 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TT 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WA 1</td>
<td></td>
</tr>
<tr>
<td>Assist Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head of School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head of Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team Leader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Head Teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An analysis of the case node data processed by NVivo software resulted in a break down of all the coded units of information attributed to the RESEARCHER in all the interviews (18 in total), and those units of information attributed to the other participants as a proportional ratio and a percentage of the whole interview. These results are shown in Table 3.5.5.6 below.
In the Table 3.5.5.6 above, it is shown that as the number of participants in the interview decreased the number of units of information attributed to the RESEARCHER increased as a proportion and to a lesser extent as a percentage of all the interview transcript units of information (in the range from 17.51% where there were 9 participants and 41.87% where there was only one participant). These results may be attributed to the fact that the interviews were semi-structured and additional questions and statements were made by the RESEARCHER to further explore the relevant topics, to maintain the momentum of the interview discussion, and to facilitate the exchange of views by the participants. It was found useful, when necessary, to contribute some relevant topic statements to start off the discussion and to obtain useful and rich information about the topic from the participants.

In one-on-one or very small group interviews, with only 1 or 2 participants, the proportion of the units of information attributed to the participants and the RESEARCHER was more balanced, as expected. However, in the next phase of the data analysis using the noted recursive parsing techniques, the RESEARCHER’s input was largely reduced, except for the
input that provided a context for some of the statements made by the other participants in response to the RESEARCHER’s questions and statements during the discussion. The percentages shown above in Table 3.5.5.6 were also reflective of the degree of effort which was sometimes required to engage the participants in the discussion of the relevant topics.

3.6 THE DISCOURSE ANALYTIC METHOD

A form of qualitative analysis that was found to be relevant to this research is the discourse analytic method\textsuperscript{161} [95] described by Talja who argued that participant’s interpretations are much more context-dependent and variable than is usually acknowledged, and this has important implications for the use of interview data. Rather than producing definitive versions of participants’ actions or beliefs, interview data may be used to reveal regular interpretive practices used by the participants to construct their versions of actions, processes and other phenomena. Further, this method does not consider the individual as the principal unit of analysis, but attempts to identify cultural regularities in participants’ accounts for the purposes of examining the phenomena at a macro-sociological level – for example, for the purposes of this study, at the institutional level of TAFE design education considered as a sub-system of the national VET system.

Talja and others suggest that in the discourse analysis method, the basic analytic unit is the interpretive repertoire (see also Gilbert & Mulkey, 1984; Potter & Wetherell, 1987; Wetherell & Potter, 1988 [in 95]). In this method, interview data are analysed using an approach that concentrates on the analysis of knowledge formations which organise institutional practices and societal reality on a large scale. However, it should be noted that the term ‘discourse’ is used in a number of research approaches, which do not necessarily have common theoretical bases. The form of discourse analysis discussed here, is applied to examine ‘serious speech acts’ or in other words institutionalised talk or practices, rather than ‘mundane talk’ that dominates discursive social psychology and conversation analysis. Discourse analysis studies practices that produce knowledge and meaning within concrete contexts and institutions – be they, as in this research, the TAFE education system institutions and their practices. It also systematises ways of talking to reveal the perspectives and starting points which form the

\textsuperscript{161} Talja, S., (1999), \textit{Analysing qualitative interview data: The discourse analytic method}, Library & Information Science Research 21 (4): 459-477.
basis for producing knowledge and meaning at a particular historical moment. In addition, it focuses on the way in which discourse produces and transforms social reality, and allows evaluation of different ways of approaching a particular phenomenon. Using this strategy, it will be shown that the analysis of interpretative repertoires: the systematic examination of context-dependent variability in talk and texts can lead to the discovery of important discourses in this particular research field of study. The terms ‘discourse’ and ‘interpretative repertoir’ are apparently interchangeable, and the identification of interpretative-repertoires is the endpoint of discourse analysis. In this thesis, the writer has associated the discourse/interpretative repertoires with the parametric model constituent variables of the TAFE system.

Talja also indicated that the constructivist method of interpretation, often used in discourse analysis, causes problems in some traditional approaches in qualitative analysis. She reported that interview talk needs to be approached with different expectations from how we have learnt, as members of a culture, to interpret people’s talk in everyday life, and not treat participants’ accounts as descriptions of actual processes or behaviours because interview talk by its nature is a cultural and collective phenomenon. The meaning of a response to a question or statement is not a simple case of external and internal references, but it also depends on the local and broader discursive system in which the speech is embedded162 [96].

It has also been suggested by Talja that researchers often start qualitative analysis by analysing and counting the distribution of responses to questions or statements by selecting sections of participants’ discourse that seem to provide satisfactory answers and ignoring or treating as unimportant the other parts. This assumes that this approach will result in logical and coherent representations of participants’ views, and therefore can be generalised to classes of social actions and to whole groups163 [97]. This can be problematic due to the variability in participants’ statements about a particular topic. Different participants may make different statements and, over the total duration of an interview, it is difficult to summarise the views of one participant because each participant may have many different voices (Gilbert & Mulkay). Further, it is suggested that the consistency in such summaries is a result achieved by the

researcher, and it is not necessarily a feature of the participant’s discourse. The context-dependent nature and cultural logic of the responses may be missed because in different sections of the interview the participant may approach the topic from a different perspective, and express contradictory views. These kinds of variations and inconsistencies are not exceptional and a product of the interview situation as they also can be found in responses to survey questionnaires. Such variations may be managed, as suggested by Talja, by analytic strategies of restriction through categorising, coding and selective reading because researchers tend to regard individual participants as coherent and consistent. What is more, it is commonly assumed that the object of the talk, (for example, in this thesis, the TAFE education system), exists as a lasting and consistent whole in which different people have differing opinions and experiences\textsuperscript{164} [95]. This is based on the assumption that both the questions and the contextualisation of neither the topic/ nor the persuasiveness and the status of the researcher’s unspoken theory in a specific place and time significantly influences the interviewees’ responses.

However, according to Wittgenstein\textsuperscript{165} [98], in the discourse analytic approach discussed here, the researcher is required to avoid such assumptions because by nature, interview talk is \textit{interpretation work} relating to the topic in question. Further, it is \textit{reflexive, theoretical, contextual and textual}, since the objects of talk are not entities that everyone perceives in the same way. Participants produce a version of the entity and it contains an evaluation. Talja\textsuperscript{166} [95] suggests that in discourse analysis such variability and inconsistency is not seen as a potential error when striving to make sense of the participants’ views. The variability of interpretations does not exclude the possibility of regularity in participants’ discourse, however it may also signify that regularity is not able to be associated with the individual speaker\textsuperscript{167} [95]. The speakers themselves do not consider the inconsistencies as a problem because, in normal conversations, they can only remember two or three of their latest turns\textsuperscript{168} [95]. However, if two different viewpoints are expressed in the same section of talk, the speaker will usually attempt to resolve them. When different versions of the topic are

\begin{flushleft}
\textsuperscript{164} ibid
\textsuperscript{166} ibid
\textsuperscript{167} ibid
\textsuperscript{168} ibid
\end{flushleft}
produced in different sections of talk, and there is no attempt to resolve these, then this is a clear indication of different interpretative repertoires (Gilbert & Mulkay, 1984; Wetherell & Potter, 1988).

In this thesis, the writer has found that this discourse analytic method explained what had in fact occurred intuitively as a result of the approach taken during the data analysis processes illustrated in the next section below.

3.7 APPLICATION OF THE PARETO PRINCIPLE

From Table 3.7.1 overleaf, it can be seen that, during and following the initial transcript coding process, the number of parameters and their constituent variables increased. The next task was to select the significant parameters and their constituent variables using the Pareto Principle\[36\]. Also known as ‘The 80/20 Rule’, this was first created in 1906 by Vilfredo Pareto, an Italian engineer and economist when he was developing his mathematical formula to describe the unequal distribution of wealth in Italy at that time, based on his observation that twenty percent of the people owned eighty percent of the wealth. Towards the end of the 1940’s, Dr. Joseph Juran generalised the 80/20 Rule and named it the Pareto Principle. There were other observations of the rule and Juran coined the “vital few and trivial many” principle during his career as a quality management pioneer. Essentially, this implied that twenty percent, or the vital few defects, were responsible for eighty percent of the problems. This principle can be a useful tool used in managing data as it suggests that in a problem situation there is a need to mainly focus on the twenty percent that matter and less on the trivial many. In the context of system design this principle states that only relatively few parameters and the constituent variables in the system will have a major effect on the outcomes.

Applying the Pareto Principle, and using the frequency of interview transcript ‘sources’ together with coded ‘references’ at the tree node variables as a guide, important parameters and variables were identified and selected for more comprehensive analysis. As shown in Table 3.7.1 overleaf, the resulting selections are based on the NVivo software generated distributions of coded data. The parameters and their constituent variables that were shown, in NVivo, to have a high number of sources and references were considered to be the more important ones to be further examined using the Recursive Parsing Method (RPM).

Table 3.7.1: Selection results following the application of the Pareto Principle to select key constituent variables for recursive parsing of data after initial coding

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>CONSTITUENT VARIABLE</th>
<th>SOURCES</th>
<th>REFERENCES</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATTITUDES</strong></td>
<td>Teachers’ educational beliefs</td>
<td>18</td>
<td>98</td>
<td>Further categorised as ‘Positive’, ‘Neutral’ and ‘Negative’ opinions about the TAFE education system</td>
</tr>
<tr>
<td></td>
<td>Training</td>
<td>18</td>
<td>82</td>
<td>Teachers’ perceptions about vocational training</td>
</tr>
<tr>
<td></td>
<td>Universities</td>
<td>15</td>
<td>32</td>
<td>Teachers’ perceptions about and comparisons with university education</td>
</tr>
<tr>
<td><strong>CURRICULUM DESIGN</strong></td>
<td>Training Package based</td>
<td>14</td>
<td>47</td>
<td>Teachers’ perceptions about TP based programs and their implementation</td>
</tr>
<tr>
<td></td>
<td>Study pathways</td>
<td>13</td>
<td>36</td>
<td>Teachers’ perceptions about study pathways</td>
</tr>
<tr>
<td></td>
<td>Accredited non-Training Package</td>
<td>10</td>
<td>14</td>
<td>Teachers’ perceptions about accredited programs and the transition to TP based programs</td>
</tr>
<tr>
<td><strong>CURRICULUM DETERMINANTS</strong></td>
<td>Industry training needs</td>
<td>18</td>
<td>79</td>
<td>Teachers’ perceptions about industry training needs</td>
</tr>
<tr>
<td></td>
<td>Design practice</td>
<td>16</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student training needs</td>
<td>17</td>
<td>65</td>
<td>Teachers’ perceptions about students training needs</td>
</tr>
<tr>
<td></td>
<td>Emerging training needs</td>
<td>17</td>
<td>52</td>
<td>Teachers’ perceptions about emerging training needs</td>
</tr>
<tr>
<td><strong>STUDENT QUALITIES</strong></td>
<td>School leavers</td>
<td>16</td>
<td>60</td>
<td>Teachers’ perceptions about school leavers as TAFE students</td>
</tr>
<tr>
<td></td>
<td>Student selection</td>
<td>16</td>
<td>57</td>
<td>Teachers’ perceptions about the student selection criteria, processes and practices</td>
</tr>
<tr>
<td></td>
<td>Mature age</td>
<td>16</td>
<td>49</td>
<td>Teachers’ perceptions about mature age students as TAFE students</td>
</tr>
<tr>
<td><strong>TEACHER QUALITIES</strong></td>
<td>Staff qualifications</td>
<td>16</td>
<td>51</td>
<td>Teachers’ perception about their qualifications to teach in design programs</td>
</tr>
<tr>
<td></td>
<td>Innovation leadership</td>
<td>14</td>
<td>46</td>
<td>Teachers perceptions about leadership and innovation in TAFE design education</td>
</tr>
<tr>
<td><strong>TEACHING STRATEGIES</strong></td>
<td>Teaching practice</td>
<td>18</td>
<td>196</td>
<td>Teachers’ perceptions about TAFE design education practices</td>
</tr>
<tr>
<td></td>
<td>Program delivery</td>
<td>18</td>
<td>99</td>
<td>Teachers’ perceptions about how program delivery is managed</td>
</tr>
<tr>
<td></td>
<td>Integration</td>
<td>17</td>
<td>45</td>
<td>Teachers’ perceptions about the level of integration and clustering of units/ modules</td>
</tr>
</tbody>
</table>
Table 3.7.1: Selection results following the application of the Pareto Principle to select key constituent variables for recursive parsing of data after initial coding continued…..

<table>
<thead>
<tr>
<th>WAYS OF LEARNING</th>
<th>Project based</th>
<th>18</th>
<th>72</th>
<th>Teachers’ perceptions about project based learning and its use in TAFE design education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reflection</td>
<td>15</td>
<td>45</td>
<td>Teachers’ perceptions about the role of reflection in learning</td>
</tr>
<tr>
<td>ASSESSMENT</td>
<td>Competency based assessment</td>
<td>18</td>
<td>90</td>
<td>Teachers’ perceptions about CBA</td>
</tr>
<tr>
<td></td>
<td>Feedback to students</td>
<td>14</td>
<td>47</td>
<td>Teachers’ perceptions about provision of feedback to students</td>
</tr>
<tr>
<td></td>
<td>Self/ peer assessment</td>
<td>16</td>
<td>29</td>
<td>Teachers’ perceptions about the use of self and peer assessment</td>
</tr>
<tr>
<td>GRADUATE ATTRIBUTES</td>
<td>Employability</td>
<td>18</td>
<td>78</td>
<td>Teachers’ perceptions about integration of generic Employability Skills and job readiness</td>
</tr>
<tr>
<td></td>
<td>Design skills</td>
<td>11</td>
<td>39</td>
<td>Teachers’ perceptions about the design skills of graduates</td>
</tr>
<tr>
<td>GOOD QUOTES</td>
<td></td>
<td>15</td>
<td>249</td>
<td>A range of quotations taken from the interview data</td>
</tr>
<tr>
<td>ISSUES</td>
<td>Quality Assurance</td>
<td>15</td>
<td>44</td>
<td>Teachers’ perceptions about QA implementation</td>
</tr>
<tr>
<td></td>
<td>Teachers’ workload</td>
<td>14</td>
<td>37</td>
<td>Teachers’ perceptions about their workloads</td>
</tr>
<tr>
<td></td>
<td>Administration</td>
<td>11</td>
<td>20</td>
<td>Teachers’ perceptions about their admin roles and admin support</td>
</tr>
<tr>
<td>SUGGESTIONS</td>
<td></td>
<td>17</td>
<td>136</td>
<td>A range of teachers’ suggestions</td>
</tr>
</tbody>
</table>

Note that the parameters ‘GOOD QUOTES’ and ‘SUGGESTIONS’ are virtual parameters with no constituent variables. However, they contained a considerable amount and richness of coded data, and were therefore selected for further analysis.

The results of the recursive parsing process and related analyses are discussed in detail in Chapter 4.

3.8 EXAMPLES OF EXPERIMENTAL DATA

To explain the qualitative data analysis method used in this research, the following extract from an actual focus group transcript obtained from the fieldwork will serve as a typical example of the transcription record. This will be followed by presenting an example of further data processing related to the same transcription extract, and discussion of the method used. (Detailed explanations follow in Chapter 4).
Table 3.8 on the next page, shows an extract from the interview transcript conducted at the Enmore Design Centre in Sydney. The focus group interview recorded the views and aspirations of nine TAFE design education practitioners about the TAFE design education system. The recording was transcribed by the writer as accurately and completely as possible in the table format shown below in Figure 3.8.1 Particular attention was paid to noting instances where the recording was difficult to hear and decipher. This usually occurred when several people started to speak together or expressed inaudible comments.

Each participant was identified in the ‘SPEAKER’ column by a unique label RESEARCHER or SPEAKER 1, 2, 3 and so on numerically, in the order that they spoke and made statements in response to questions and contributed to discussion. The column ‘TRANSCRIPT’ contains the text of the transcript with the key concepts highlighted by the shading. The elapsed time from the start of the interview recording is noted in the ‘COMMENTS’ column. In addition, in this column brief notes and explanations are provided in *italics*. Instances of observed and voiced general agreements or disagreements with a particular Speaker’s statements are also noted here. These procedures were consistently followed by the writer with regard to all the other recordings of the interviews collected during the fieldwork visits to the selected TAFE Institutes listed earlier in Table 3.5.1. (The actual voice files are given on a DVD located in Appendix 1 – approximately 200MB).

As noted, these transcripts of voice files are given here to explain the discourse method used by the writer. Detailed analysis of these transcripts is given in Chapter 4.

In this extract (Table 3.8.1) the focus group participants are discussing the parameter ‘curriculum design’ in relation to current prevailing educational philosophies or theories, and in the context of the changes brought about by the placement of industry as the principal stakeholder. That is, in determining training needs that lead to the introduction of National Training Packages endorsed by industry. The interview participants are expressing their views (highlighted by shading) about the curriculum consultation process, its implications and outcomes from the perspective of their collective experience.
**Table 3.8.1: Extract from transcript of focus group discussion related to the system design parameter ‘curriculum design’**

**INTERVIEW CONDUCTED AT ENMORE DESIGN CENTRE on 10 NOVEMBER 2004**

After initial introductions and explanation of the purpose of the interview and agreement to record the proceedings the interview commenced.

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>TRANSCRIPT</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCHER</td>
<td>OK let’s look at the first question dealing with curriculum development side of practice. What are the current underpinning philosophies or education theories that influence the curriculum development in the VET context? And do they distinguish it from the other education practice? In other words is there a strong philosophy that ...emerges?</td>
<td>Start 00:00:00</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>It could be perceived as a philosophy that students are ready to get into the workplace and train for it.</td>
<td></td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>Yes. So does that mean that we are driven by employment requirements?</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Well that is the underlying perception in the public. I don’t know if that’s happening.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>In effect it is very driven by employability.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Yes. Well I have misgivings about the curriculum in that context.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 3</td>
<td>So our powers that be make it very clear the curriculum’s architectures are defined by industry and we can have, you know, our little say, but it is driven directly by industry and we can put our hand up and contribute through consultation and make a little speech...and that’s always been there...</td>
<td>inaudible interjection (00:01:55)</td>
</tr>
<tr>
<td>SPEAKER 4</td>
<td>I think we are in an interesting change at the moment that hasn’t really hit design in a big way as far as our higher level qualifications go. In that we traditionally had industry focus groups who have defined where our curriculum should be going at a fairly local state level. Now it is moving to a national level and what I think is happening very often is that certain states in particular get a huge voice or certain organizations get a huge voice and it’s not necessarily representative. And I think that that is a real danger.</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>It is happening now in the area I’m in. We’re having huge problems with the curriculum because it’s not meeting the expectations of the students. And it’s because it has been driven nationally it doesn’t suit the purposes of the students.</td>
<td></td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>So then, isn’t it a function of the fact that we have different task masters? We have the industry on the one hand, and we also have the students on the other hand, and then there are the parents and the community and…?</td>
<td></td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Industry is the maker of some of those points I think...</td>
<td>inaudible</td>
</tr>
</tbody>
</table>
Table 3.8.1: Extract from transcript of focus group discussion related to the system design parameter ‘curriculum design’ continued

| SPEAKER 5 | I think you also have, I think you have three main bodies that are the industry, then the students and I think that its actually the people who deliver the courses and the curriculum because there is a very strong...... I believe that all of us in this room have a very strong philosophical view on education, and there is a discrepancy between educating and training and training for industry. If you are an educator you believe in a wholesome delivery. You know, wholesome education and a wholesome delivery of a course whereas, there is a reductionistic view coming from industry and that requirement. I think within that (our) faculty we still have the ability to deliver what we believe in philosophically. Would you think that that’s right …? I mean that’s certainly….. |
| SPEAKER 1 | That’s right. I agree with some of those points. I think that it’s the validity of the industry panel that advised what should be delivered that I question. |
| SPEAKER 3 | Its nature of asking somebody what they would like for Christmas and they have a short time to do it. They are very busy people and they will give you a very long list. Then that list goes through a number of processes, and then at the end of the day somebody, who hopefully in any case usually understands little bit about how to write from the ground, has to write up that list into some sort of curriculum. So it’s not that the industry, the industry does actually want attitudes more than it wants technical competence. But if you ask them what they want, they’ll tell you they want technical competence and that’s what will get written in the curriculum documents. Because the technical competence without the right attitude is absolutely worthless. Indeed detrimental to what industry wants. So it’s not, we’re not actually in conflict here. We’ll talk about the educational development of someone, because that’s developing their attitudinal skills and that’s what industry wants. |
| SPEAKER 4 | And that’s interesting. And that’s what we call, and that’s what we term as education. And I find it interesting, we’re coming together again really, that’s what’s happening. |
| SPEAKER 2 | But we’re also developing their attitudinal skills by building in things like teamwork, communication skills…... |
| SPEAKER 3 | That’s what we’re doing in courses. |
| SPEAKER 2 | …in courses. In a lot of ways they have replaced the educational components. |

(voice trailing off)
Table 3.8.2, which follows illustrates the recursive method used to parse the transcripts of the voice files transcript noted in Table 3.8.1. The shaded phrases in this table shows how important issues and considerations were highlighted by this parsing method.

Table 3.8.2: Extract of parsed focus group transcript related to discussion of the system design parameter ‘curriculum design’

<table>
<thead>
<tr>
<th>ANALYSIS OF INTERVIEW CONDUCTED AT THE ENMORE DESIGN CENTRE NOV 2004</th>
</tr>
</thead>
</table>
| Appraisal and parsing of the responses obtained from an interview conducted at the ENMORE DESIGN CENTRE – Sydney Institute of TAFE, in order to identify key issues and information about the parameter ‘curriculum design’.

Curriculum development: What philosophy or education theories inform curriculum development?
- Students to be ready to get into workplace – job ready – employability
- Curriculum defined by industry – validity of industry panels being questioned
- ISSUE: How representative are industry focus groups at state level? Some states/organisations seem to have ‘huge voice’ – nationally driven standards
- Curriculum not meeting students’ expectation – because it is nationally driven
- Conflicting stakeholder interests that have to be resolved – industry; students; community (govt?); people who deliver programs
- ISSUE: Discrepancy between educating and training for industry – educators value wholesome education delivery – reductionist view coming from industry – provide training that meets current minimum needs – short, concise and timely.
- ISSUE: Teaching staff attitude – those that remain committed to wholesome delivery haven’t changed their approach – that is, ignoring and making curriculum suit their philosophy
- ISSUE: Industry – very busy people, difficulties with defining and communicating industry training needs – problem with PROCESS - translation of industry lists into meaningful curriculum documents that fully reflect the industry training needs – industry wants both technical knowledge and skills (competence) as well as appropriate attitudes to carry out tasks. However, they tend to focus more on the technical competence – easier to define and that is what’s put into curriculum
- Educational development of someone is desirable because it develops their attitudinal skills – teamwork, communication skills

As briefly noted before, the parametric model of the TAFE design education system was populated by the writer with fieldwork data, and it became clear that the initial model (Figures 3.2.1 and 3.2.2) had to be expanded and reconfigured to cater for and include additional, important parameters and related constituent variables. This development will be discussed in detail in the next chapter. However, for the purpose of explaining the development of this model in terms of the research methodology, further details are given in Table 3.8.3.

Table 3.8.3 is an extract from the consolidated data analysis of the views of design education practitioners (at all of the participating TAFE Institutes) regarding the system design parameters ‘curriculum design’ and ‘curriculum determinants’ (see Appendix 3 for more
detailed information). The interviewees’ responses clearly indicated that these were important parameters in their own right and, therefore, that they ought to be included in the NVivo system design model of TAFE design education. This extract contains the paraphrased (by the writer.) views of the Enmore Design Centre focus group participants that were coded as the new ‘CURRICULUM DETERMINANTS’ parameter in relation to the related constituent variables, namely, ‘Industry training needs’ and ‘Industry feedback’.

These data have been further classified according to whether the statements made by the participants conveyed a positive or negative view regarding the noted parameters and their variables – all with respect to their significance or impact on the process of curriculum design and development.

Furthermore, this table also includes in italics the writer’s interpretation, comments and findings arising from the analysis of the transcript data (arrived at by using the recursive parsing method noted above).
Table 3.8.3: Extract of analysis of the views of TAFE design education practitioners at the Enmore Design Centre regarding the parameter ‘CURRICULUM DETERMINANTS’ and the constituent variables: ‘Industry training needs’ and ‘Industry feedback’

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Our powers that be make it very clear that the curriculum’s architectures are defined by industry, and it is driven directly by industry. But we can contribute through consultation.</td>
<td>• It could be perceived as a philosophy that students are ready to get into the workplace and train for it. That is the underlying public perception. I don’t know if that’s happening. In effect it is very driven by employability. I have misgivings about the curriculum in that context.</td>
</tr>
<tr>
<td>• But if you ask industry what they want they’ll tell you they want technical competence and that’s what will get written in the curriculum documents. Because the technical competence without the right attitude is absolutely worthless, indeed detrimental to what industry wants, we’re not actually in conflict here. We’ll talk about the educational development of someone, because that’s developing students’ attitudinal skills and that’s what industry wants.</td>
<td>• I think we are in an interesting change at the moment because that hasn’t really hit design in a big way as far as our higher-level qualifications go. We traditionally had industry focus groups that have defined where our curriculum should be going at a fairly local state level. Now it is moving to a national level, and what I think is happening very often is that certain states or certain organizations in particular get a huge voice and it’s not necessarily representative. And I think that that is a real danger.</td>
</tr>
<tr>
<td>• In relation to underpinning generic skills — (Employability Skills) they are being addressed all the time. This has been recommended by industry, that’s critical. If someone can only use Photoshop they’re of no use to anybody. This person has to be able to communicate with a whole range of clients, and negotiate and do all sorts of other quite higher-level skills. However, the employer would have written down that using the latest applications is critical. They want them to be competent in Quark and Photoshop because they’re aware that that’s the latest software. But that is not actually the outcome they wanted. They wanted a person who showed innovation, and was keen and enthusiastic and all that stuff as well. That’s really what they wanted. Someone to be able to do something useful.</td>
<td>• Change is happening now in the area I’m in and we’re having huge problems with the curriculum because it’s not meeting the expectations of the students. Because it has been driven nationally it doesn’t suit the purposes of the students.</td>
</tr>
<tr>
<td>• We said that in TAFE we’re not interested in them (university) writing a thesis. That won’t get them a job.</td>
<td>• Asking industry what training they would like is like asking somebody what they would like for Christmas, and they have a short time to do it. They are very busy people and they will give you a very long list. Then that list goes through a number of processes, and at the end of the day somebody has to write up that list into some sort of curriculum. So it’s not that the industry, the industry actually does want attitudes more than it wants technical competence.</td>
</tr>
<tr>
<td>• But later on in their life, once graduates have been in the workforce for a while and they are getting ready to start taking management roles, or head of marketing – Asia, whatever they do - they all go back to university and they do whatever their aim is. (ARTICULATION) So study pathways are not something the industry is interested in initially. They want them to be able to get in there with a group of people and get on with it.</td>
<td>• I think that the shopping list that industry puts together is very often based on what’s worked in the past. And it’s not about innovation. And it’s not about entrepreneurial qualities that we would like to imbue our student. But it’s about what has worked in the past and they say: ‘We’ll have that again, thank you very much’. And we give it to them and then they say: ‘Wait a minute, that’s not enough. That’s not what we wanted’. And so I think there’s a constant rebalancing between the expectations of industry and vocational training versus the notion of education and giving the students the ability to do it (design work) independently by themselves.</td>
</tr>
<tr>
<td>• And industry recruitment is going back to the way it used to be. It’s going back to their portfolio again. So we’ll give them a diploma or an advanced diploma and then the employers say let’s see what you can do. “Let’s have a look at your work.”</td>
<td>• Maybe that depends on the type of industry too, don’t you think? Some are very forward looking but you also have industries that are really stuck in the present if not in the past.</td>
</tr>
<tr>
<td>•</td>
<td>• I see us really in a sense having to drive it and not being necessarily dictated to by industry, but driving it with a forward-looking view because often industry don’t even know what they might want.</td>
</tr>
</tbody>
</table>

Continued overleaf…….
The role of TAFE is not just to provide that entry-level skilling for employment. Some graduates are actually going in at the top. What is happening is that graduates have a basic level of software skills having done it for maybe two years? That’s what opens the doors for them because industry wanted to move forward into the future. The industry didn’t have anyone there with those skills because the managers were all my age or older (middle aged), and they’re not going to sit there for five years to learn this really hard stuff. They’re past that. So they get them in there as a young person. Very quickly graduates realise they’re not just playing with software, but are really valuable because they’re young and innovative and they want a career. And off they go.

And within a year to 18 months they’re managing that section. They’re putting forward proposals to the board to reorganise the way they do work because they’ve looked at it and said this is woefully inefficient. This is holding up things in the business and that’s the value.

In our area we use highly technical and cutting edge, creative design software. The students are driving that. So it’s not that we’re not training them in those areas, we are. We’re getting incredible results out of them in those areas. It’s not that we are doing one instead of the other and they’re just learning the right attitudinal stuff. They’re developing an understanding what the right attitude is and at the same time they’re learning the technical skills. But that of course is not what’s on the industry list.

INTERPRETATION AND FINDINGS

- Industry is the main driver defining the curriculum and there are limited opportunities for consultation with TAFE practitioners
- Industry’s explicit focus is mainly on identifying technical skills and content – TAFE design educators are also concerned about developing a more complete and relevant capacity and attitude profile of designers. There is a need for industry to be more explicit about the implied and required qualities of graduates – generic Employability Skills framework. This has been endorsed but not being fully implemented
- There is a tension between the need to satisfy industry need for entry into employment and the need for effective pathways for entry to university – ‘thesis writing’ is not a requirement for industry employment. Most TAFE graduates are likely to engage in higher education study after a period of industry experience, however increasing numbers are looking to gain career advantage by pursuing articulation to university after TAFE.

The curriculum is very driven by the need to develop highly employable graduates. There are misgivings about the curriculum in that context because the learner’s capacity building to engage with industry and the community is not fully realised – there is more to life than work; teachers see a broader role for TAFE education

There is concern that as more national Training Packages are developed at diploma and advanced diploma levels in areas related to design practices, the specific local industry needs that used to inform the curriculum development will be inundated by the needs of the more influential sectors and organisations of the industry

The other concern is that Training Package qualifications are not fully meeting students’ expectation and needs

Continued overleaf….
Table 3.8.3: Extract of analysis of the views of TAFE design education practitioners at the Enmore Design Centre regarding the parameter ‘CURRICULUM DETERMINANTS’ and the constituent variables: ‘Industry training needs’ and ‘Industry feedback’ continued....

- TAFE’s design education role extends beyond entry level employment training. In some design fields where there is a high level of computer application use as a result of technological change, TAFE graduates make a quick progression in their career because they bring relevant and current computer skills to design offices. Older and middle management staff find it more difficult to develop those skills on the job and rely on the new recruits to remain competitive in the market
- To be gainfully employable in computer-based design practices due to the number of software application being used to produce the required outcomes, it is suggested that at least two years of training is desirable
- The emphasis in TAFE is on achieving an integrated and balanced approach to developing technical and generic design skills, knowledge and attitudes
- It is suggested that industry is too busy to devote adequate time to define training needs and the Training Package development process results in compromised outcomes in order to appease all industry stakeholders. The main focus and agreement is about the more obvious and demonstrable outcomes. The more implied underpinning skills and knowledge that are difficult to describe are not easily integrated into the unit outlines – (this has now been addressed by the 2005 decision to incorporate Employability Skills delivery and assessment in all Training Package qualifications and competency units); TAFE practice is changing to meet the new requirement
- Student demand is also driving the need to adopt the latest technology tools used in design practice
- It is suggested that often in haste industry asks for the kind of training that has worked in the past and only later realises that this is not as relevant as it used to be due to changes in technology, expectations and innovation that have occurred – this implies that Training Packages are usually trying to catch up with changes in industry. Perhaps they need to focus more on current and emerging training needs and to build the capacity to easily adapt to changed practices – some industry sectors are more progressive and others more conservative in terms of innovation and change
- It is suggested that TAFE should take a leading role, instead of industry, when determining the way training is developed and delivered to students because often TAFE practitioners know better than the industry representative what the current and emerging needs are, and how to provide educationally sound and relevant training - it is almost resented that industry has the leading role now

From the tables above it was possible to populate the parametric model in terms of the sources and numbers of references in relation to the identified variables. As a result of the analysis of the above interview data with respect to the originally identified parameter ‘CURRICULUM DEVELOPMENT’, it was possible to add the new system parameter ‘CURRICULUM DETERMINANTS’ - with its identified constituent variables ‘industry training needs’ and ‘industry feedback’. This parameter and variables were considered to be very important by the focus group participants.

Figure 3.8.1 below, (see page 143), shows the configuration of the updated parametric model of the system with the separate parameters ‘curriculum design’ and ‘curriculum determinants’, as well as their constituent variables. (The other updated parameters and
constituent variables are shown in Chapter 4. This is basically how the parametric model of the TAFE design education system was developed, in a stepwise manner from analysis of the experimental (fieldwork) data and processed with the NVivo software tool.

Typically, the NVivo window display\textsuperscript{170} of projects is divided into five main areas (Figure 3.8.1) overleaf. Firstly, across the bottom of the window is the ‘\textbf{Status Bar}’ which provides information about the current display. The ‘\textbf{Tool Bar}’ runs across the top of the window and provides access to the commands and functions of the NVivo program. Then, the projects structure display is divided into three areas. The left hand side column is the ‘\textbf{Navigation View}’ providing access to the entire project items which are stored in ‘\textbf{Folders}’. To the right of the Navigation View, the ‘\textbf{List View}’ is usually displayed above the ‘\textbf{Detail View}’. The List View provides a summary of the items contained by the mentioned folders located in the Navigation View. The Detail View shows the contents of any selected open item, and by default it is displayed underneath the List View. However, for convenience, it is possible to display it as a column to the right of the List View.

Figure 3.8.1 below is the relevant NVivo window display of the thesis project that shows the contents of the folder ‘\textbf{Nodes}’ located in the Navigation View. The List View shows a list of the items currently on display. As no item has been opened there is no Detail View displayed. However, the List View has a number of columns that contain some of the related quantitative information generated by NVivo as a result of the coding process that was applied to all the imported interview transcripts held in the ‘\textbf{Sources}’ folder. Starting on the left are the names of all the tree node items and in this case the system parameters and constituent variables. In the next ‘\textbf{Sources}’ column the numbers represent the number of sources or interview transcripts relevant coded text was found. The ‘\textbf{References}’ column indicated the total number of separate relevant text passages associated with the particular variable. Note that relevant transcript texts passages were coded under the related ‘child node’ that represents the variable. The ‘parent nodes’ with the ‘+’ sign represent the model parameters and do not contain any coded transcript text passages; hence their values are displayed as ‘0’.

\textsuperscript{170} QSR International, (2008), \textit{NVivo 8 Fundamentals – starting to work with your material}, QSR International, \url{www.qsrinternational.com}
Figure 3.8.1: NVivo Revised model of the system with updated parameters ‘curriculum design’ and ‘curriculum determinants’ with their respective constituent variables (showing the relative occurrence of sources and coded references)
As can be seen in Figure 3.8.1, the parameters are arranged in an alphabetical order and the parameters ‘CURRICULUM DESIGN’ and ‘CURRICULUM DETERMINANTS’ have been opened to show their identified constituent variables.

While analysing the interview transcript data, the writer identified a number of passages that seemed to be useful and relevant statements that illustrate aspects of the TAFE design education system. These passages were coded as the parameter ‘GOOD QUOTES’ which has no constituent variables; hence the parent node in this case shows values in the ‘Sources’ and ‘References’ columns.

The experimental data results will be discussed in detail in Chapter 4 along with a more complete development of the parametric model of the TAFE design education system. This will be supported by presenting the results of the data analysis representing the views and aspirations of the teacher stakeholders.
4. EXPERIMENTAL RESULTS AND SYSTEM MODELLING

4.1 PREAMBLE

This chapter provides a summary of results of the experimental program previously described in Chapter 3. Recall that an investigation has been undertaken to develop and test a parametric model of the TAFE design education system in Australia, with particular reference to the views and aspirations of TAFE design practitioners. The interview data were collected during fieldwork at selected TAFE Institutes located in every State of Australia (except the Territories). The methods used to collect, process and analyse the data were previously discussed in Chapter 3. As a result of the participants’ views contained in responses to the research questions explored during individual and focus groups interviews, it was found possible to populate the initial proposed model with additional, important interdependent parameters and constituent variables. In this chapter, the relevant components of the empirical data and their location will be described. The data analysis methods that were used in this research, and the corresponding results, will be discussed in more detail to demonstrate how this has enabled development of a revised parametric model of TAFE design education. Finally, the characteristics of the pragmatic system design and design-process-based approach used in this research will be discussed and its significance explained.

This chapter contains a number of subsections that are set out in the following manner after the Preamble:

- Subsection 4.2 – Proposed Final Model for a TAFE Design Education System: this section presents and discusses the final model of the TAFE design education system.
- Subsection 4.3 – “Good Quotes”, presents some examples of quotations identified from the transcript data that highlight the important perceptions and aspirations of design education practitioners about the TAFE design education system.
- Subsection 4.4 - Recursive Parsing Results: this section presents and considers the results of recursive parsing analysis of the important parameters and their constituent variables.
• Subsection 4.5 - Leximancer Qualitative Data Analysis Results: this part explains how the qualitative data analysis software processes were applied to the transcript data and discusses the outcomes for the purposes of verification of results obtained using the NVivo qualitative analysis software and recursive parsing methods.

• Subsection 4.6 - Summaries of Results: this section gives and compares consolidated results obtained from all the participating TAFE Institutes to identify findings and conclusions about the TAFE design education system in the Australian context. Furthermore, it demonstrates the potential of the parametric model of the TAFE design education system to obtain relevant data about the views and aspirations of the teachers.
4.2 PROPOSED FINAL MODEL FOR A TAFE DESIGN EDUCATION SYSTEM

As foreshadowed earlier, following the completion of the interview transcript coding and subsequent recursive parsing of the data, the preliminary model of the design education system in TAFE was revised and populated with additional important parameters and their constituent variables. It is found that the final parametric model of the TAFE Design Education System (as depicted in Figure 4.2.1 to 4.2.4 as taken from the computer screen displays) contains 13 parameters and 86 associated constituent variables. This represents a significant increase on the number of parameters and constituent variables of the original preliminary model (5 and 20 respectively), and indicates the high level of complexity associated with design education in TAFE that needs to be considered when developing and managing such a system. The writer is also mindful that this model is reflective of the teacher stakeholders opinions and may be expanded further with research data obtained from the other stakeholders.

Important additional parameters have been identified and integrated into the final model, namely:

- STAKEHOLDERS with 4 constituent variables
- ATTITUDES with 7 constituent variables
- ISSUES with 19 constituent variables
- SUGGESTIONS, a virtual parameter that captures some of the many aspirations and ideas for improvement offered by the design teaching practitioners
- GOOD QUOTES, a virtual parameter which is a collection of statements that are useful for the purposes of illustrating the current state of affairs in the TAFE design Education System.

The above mentioned virtual parameters may be regarded as such because they, in a sense, capture valuable information that illuminates the participating interviewees’ concerns and aspirations as well as constructive ideas for making the TAFE Design Education System better. Other important parameters have been introduced into the model as a result of the need to be more specific and distinguish between, say, standard CURRICULUM DESIGN requirements and specific CURRICULUM DETERMINANTS which were found to be
variable depending on the design discipline and industry context considered. Similarly, the initial model parameter STUDENT AND STAFF SELECTION has been split into two specific parameters that deal separately with the STUDENT QUALITIES and TEACHER QUALITIES that each brings into play within the system, respectively.

The initially defined parameter PROGRAM DELIVERY has been revised and split into the parameters TEACHING STRATEGIES and WAYS OF LEARNING. The reason for this is to draw the distinction between strategies implemented and relied on by teachers in cases of more teacher-centred approaches to TAFE design education, and the range of preferred learning styles that are exhibited by different learner groups and individuals. These learning styles are taken into consideration when implementing a more student-centred approach to TAFE design education.

Due to the relatively large scale of the model and limitations of the NVivo software computer window display, the model is shown in Figures 4.2.1 to 4.2.4 overleaf. The parameters and their constituent variables are shown in alphabetical order. Also shown in these figures, alongside each of the constituent variables, is the number of sources (denoting the number of interview transcripts) and the number of associated coded references which, as stated earlier, allowed the writer to select and focus on the variables that had the higher number of sources and references.
Figure 4.2.1 Partial view of the final parametric model of TAFE Design Education System – parameters and their constituent variables shown here in alphabetical order: ASSESSMENT; ATTITUDES and CURRICULUM DESIGN.
Figure 4.2.2 Partial view of the final parametric model of TAFE Design Education System – parameters and their constituent variables shown here in alphabetical order: CURRICULUM DETERMINANTS; GOOD QUOTES; GRADUATE ATTRIBUTES; STAKEHOLDERS and STUDENT QUALITIES
Figure 4.2.3 Partial view of the final parametric model of TAFE Design Education System – parameters and their constituent variables shown here in alphabetical order: ISSUES and TEACHER QUALITIES.
Figure 4.2.4 Partial view of the final parametric model of TAFE Design Education System – parameters and their constituent variables shown here in alphabetical order: TEACHING STRATEGIES and WAYS OF LEARNING
A concise graphical representation of the parametric model of the TAFE Design Education System, realised after the analysis of transcript data, is shown next in Figure 4.2.5 overleaf – this is a representation of the model developed using the modelling function provided in the NVivo software. In this figure, the parameters and their constituent variables have been rearranged in a manner more aligned with the phases of a system design process\textsuperscript{171} [Bonollo & Lewis [28 and 31] and should be read from the bottom up beginning with the parameters \textit{GOOD QUOTES} and \textit{SUGGESTIONS}, and finishing with \textit{ASSESSMENT} and \textit{GRADUATE ATTRIBUTES}. Coloured tags have been used to distinguish the ranges of constituent variables associated with each of the model parameters.

The importance of this model is that it signifies that each parameter (with its constituent variables), plays critical roles in the development and implementation of the system in an interdependent manner – just as often happens in the design process where inputs and decision making in the preceding phases influences the outcomes in the following phases of the process.

\footnote{ibid}
Figure 4.2.5 Final TAFE Design Education System parametric model showing the parameters and their constituent variables
In this instance, the **STAKEHOLDERS** are the clients, and the **ATTITUDES** they bring to bear on the problem of developing and implementing a TAFE design education system will impact on how the essential needs and qualities of the solution for the system will be defined. These attitudes, logically, will inform the development of the system and its products and services. In educational terms, the nationally endorsed and required **CURRICULUM DESIGN** settings, together with the **CURRICULUM DETERMINANTS** that indicate the training needs of stakeholders, will result in a range of training program products. The next important considerations are the **STUDENT** and **TEACHER QUALITIES** that each respectively bring to the educational setting, and with which teachers and students enrich the learning environment and experience. Typically, the function of the student and staff selection processes influence their roles in TAFE design education programs.

It is assumed that there are various **TEACHING STRATEGIES** and methods, that support different **WAYS OF LEARNING**, utilised in the TAFE Institutes to train and educate aspiring young designers. Similarly, there is a range of practices associated with competency based **ASSESSMENT** that includes both ungraded and graded assessment approaches. When taken in combination, these processes have a bearing on the **GRADUATE ATTRIBUTES** in terms of their employability and creative design skills.

As in a typical design process, the next critical phase is the **REFLECTION, EVALUATION** and **REVIEW** phase during which concerning **ISSUES** and **SUGGESTIONS** for improvement are identified to ensure that required performance standards are complied with. The information data for this phase is usually obtained through a range of surveys conducted at the local Institute, State and national levels. Often the outcomes of this phase are the identified opportunities to develop and implement improvements.

A simplified schematic parametric model of the noted TAFE Design Education System is shown in Figure 4.2.6 below. This has been constructed manually by referring to the NVivo software, computer outputs noted above. This model does not list the sources and numbers of references. Nevertheless, it does illustrate how the teacher stakeholders have perceived the design of this TAFE system. It should be noted that each of the TAFE Design Education parameters and constituent variables are generally interdependent. However, the full extent of
the interdependency would have to be investigated by future research. It is reasonable to assume that the information generated and obtained in this thesis in relation to the constituent variables would have influenced the outcomes of the periodic development processes associated with the parameters shaping the TAFE Design Education System and its outcomes. Further, as noted in the literature survey, these system processes are periodically evaluated and reviewed to take into consideration issues and emerging changes highlighted by the stakeholders, and to take steps to improve and update the system.

There is normally a 3 to 5 year cycle when the noted TAFE Design Education System may undergo incremental changes in response to ongoing reforms in the whole system, together with the periodic reviews of Training Packages and accredited curriculum that are carried out on an ongoing basis.

The usefulness of this parametric model of the TAFE Design Education system is that it provides the possibility for an integrated and holistic approach to the development and implementation of design and management processes underpinning the system and its outcomes, rather than the piecemeal and sometimes disconnected approach that may occur in instances of current practice. This of course, is without discounting the views of the other groups of stakeholders.

The results of the qualitative analysis for the selected important constituent variables associated with the model parameters will be presented and discussed in detail in the following sections of Chapter 4.
Figure 4.2.6: Schematic, parametric model of the noted TAFE design education system

TAFE DESIGN EDUCATION SYSTEM

STAKEHOLDERS

CONSTITUENT VARIABLES:
- Industry
- Governments
- Students
- TAFE

ATTITUDES

CONSTITUENT VARIABLES:
- Teachers' educational beliefs
- Training
- Universities and
- others

CURRICULUM DESIGN

CONSTITUENT VARIABLES:
- Industry training needs
- Design practice
- Emerging training needs
- others

CURRICULUM DETERMINANTS

CONSTITUENT VARIABLES:
- Training Package based
- Non-Training Package based
- Study pathways and
- others

STUDENT QUALITIES

CONSTITUENT VARIABLES:
- School leavers
- Student selection/ criteria+ process
- Mature age

TEACHER QUALITIES

CONSTITUENT VARIABLES:
- Staff qualifications
- Innovation leadership
- Change agents

TEACHING STRATEGIES

CONSTITUENT VARIABLES:
- Teaching practice
- Program delivery
- Integration and
- others

WAYS OF LEARNING

CONSTITUENT VARIABLES:
- Project based
- Reflection and
- others

ASSESSMENT

CONSTITUENT VARIABLES:
- Competency based
- Feedback to students
- Self/peer assessment
- Graded assessment and
- others

GRADUATE ATTRIBUTES

CONSTITUENT VARIABLES:
- Employability
- Design skills

ISSUES

CONSTITUENT VARIABLES:
- Quality assurance
- Teachers' workload
- Administration and
- others

SUGGESTIONS

GOOD QUOTES
4.3 GOOD QUOTES

The following quotations selected from the interviews used in this study have been coded as the parameter ‘GOOD QUOTES’. They are considered by the writer as being indicative of the existing perceptions of TAFE design education practitioners about the system and the ongoing debates associated with the introduction of CBT and Training Packages into TAFE design education. They also serve to highlight the limited exposure to diverse theoretical principles of design education that, it is assumed from the literature, generally inform the continuing discourse about design teaching and learning practices in TAFE. This may help to explain the narrowness of design education practices and the perceived slow progress towards innovation in TAFE design education pedagogies (without discounting those cases where it exists). In the context of TAFE design education, it has been reported that the use of an educational vocabulary to describe teaching and learning practices is not extensively used, and that it is mainly confined to discussing project or problem-based learning that attempts to simulate industry practices [71].

This is reflected in the following quotes which were selected to illustrate the lack of common pedagogical vocabulary and the difficulty this poses to being able to describe TAFE design education strategies and practices in order to develop an understanding of the reforms that have taken place since the introduction of Training Packages.

“It’s very fundamental. It’s you know, but it’s not a higher level philosophical discussion about methods of learning or methodologies. And I mean if you’d said ‘pedagogy’ to half the staff here they wouldn’t know what you meant.”

(SPEAKER 5, digital media design, Box Hill TAFE, Melbourne)

“I guess our methodology, I suppose, for giving students that sort of thing that’s hard to define, that design process or that problem solving, is (by) the use of fairly close to industry type brief situations where it’s all real ones.”

(SPEAKER 1, WA Central, Perth)

“I think there’s a basic lack of understanding about the way in which the Training Packages now work.”

(SPEAKER 1, TAFE Tasmania, Launceston)

One of the main findings, while conducting the focus groups and individual interviews, was that the participants demonstrated a somewhat narrow and limited capacity to articulate and
describe the reasons for using the generic or discipline specific strategies, methods and processes of design teaching and learning that they relied on. This was happening even when these teaching and learning strategies were introduced as topics for discussion, as shown in the example below. This example is taken from the early part of the focus group discussion about what informed the curriculum they were implementing in building design/drafting courses.

Table 4.3.1: Extract from Leederville focus group transcript

<table>
<thead>
<tr>
<th>RESRESEARCHER</th>
<th>What about adult education principles?</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEAKER 1</td>
<td>Not here, no not here.</td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>Do you mean in terms of short adult education courses?</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>No.</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>The influences?</td>
</tr>
<tr>
<td>SPEAKER 2</td>
<td>Do you mean input, influences?</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>Well input into the curriculum and what informs it. I mean do you have for example a very strong focus on employment destinations?</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>Yes.</td>
</tr>
<tr>
<td>RESEARCHER</td>
<td>Or are you trying to train people for lifelong learning and pathways?</td>
</tr>
<tr>
<td>SPEAKER 1</td>
<td>No.</td>
</tr>
<tr>
<td>SPEAKER 3</td>
<td>Very strong employment focus….</td>
</tr>
</tbody>
</table>

However, on the other hand it was found that the participants were also aware of the impacts competency based training (CBT) had on their teaching practices, and they often expressed
how frustrated they were by CBT and the shortcomings of Training Packages when trying to implement them in the design discipline contexts. For example, when talking about Training Packages and the role of industry in informing their development it was said:

“But I think that the shopping list that industry puts together is very often based on what’s worked in the past. And it’s not about innovation. And it’s not about entrepreneurial qualities that we would like to imbue our student, but it’s about what’s worked in the past and ‘We’ll have that again thank you very much’.”

(SPEAKER 6, Enmore Design Centre, Sydney)

When comparing the outcomes of current CBT Training Package based training with earlier curriculum based training, it was said that there were significant omissions from the current training and this implied that it is less effective than previous curriculum-based training.

“I think from own experience, I’ve had twenty five years in TAFE, I don’t believe we train people, and this is a big statement, that we train people any better under training packages than we did when I was trained forty years ago. Because I don’t think we teach, look the diagnostic skills, the analytical skills, research skills are not taught as well under training packages as they were under a curriculum-based programs.”

(SPEAKER 1 Box Hill TAFE, Melbourne)

Similar issues have been highlighted by Brennan-Kemmis and Smith\[102\] in 2006 when they concluded that many of the difficulties stemming from developing discipline-specific pedagogies\[103\] were due to the use of generic methods in teacher education, and this lead to a reduced understanding of how generic and discipline-specific pedagogy applications emerge from teaching and learning practices within TAFE education. Two of the known underpinning tenets of discipline specific pedagogy are that firstly, it is not the same as particular habits of teaching that develop among a group of teachers, and it goes beyond responding to students with different learning styles. Secondly, teachers need to recognize and develop discipline specific pedagogy in situations where they talk with practitioners from outside of their discipline as well as with those within. Schulman (1987), while discussing education generally, continued to uphold the view that teachers need both general pedagogical knowledge as well as discipline-specific pedagogical knowledge. The nature of teaching in


\[103\] *Discipline specific pedagogy*: using the same principles of pedagogy teaching may be different in ways that suit the achievement of required outcomes within a specific discipline context.
different disciplines has been the focus of debate in university teaching for some time already, and Lenze (1996), for example, indicated that there was a disagreement between central teaching-development units that offered professional development units in teaching based on the belief that teaching remains constant in all areas, and the academic staff who claimed that teaching in their field was different from teaching in other disciplines. It is reasonable to consider that this issue also exists in the VET sector context as evident in the above transcript data.

Some of the more experienced practitioners, who also had experience of working in TAFE design education prior to the introduction of CBT and Training Packages, expressed their commitment to the previous curriculum based approaches to design education, and they expressed a need to work around the current CTB system in order to maintain the integrity of the design training they provided according to their educational beliefs.

“I believe that all of us in this room have a very strong philosophical view on education and there is a discrepancy between educating and training and training for industry. If you are an educator you believe in a wholesome ….. wholesome education and a wholesome delivery of a course whereas there is a reductionistic view coming from industry and that requirement. I think within that (our) faculty we still have the ability to deliver what we believe in philosophically. We make it suit our view point and our philosophy.”

(SPEAKER 5, Enmore Design Centre, Sydney)

This view was countered somewhat by other statements, as an example, which implied that where there were a greater number of teachers with current industry design office practices, or design industry practitioners engaged in sessional teaching, than non-practicing fulltime permanent staff; there was less evidence of such strong philosophical views about education and design education in particular, because the focus was on replicating the workplace culture.

“I don’t see it with 70% part-time staff in my department. The only way to repay mortgages in Sydney is to have other jobs outside. So most of what’s delivered, is delivered, is delivered by people who are actually working in the industry for real, every day having to make a living out there.”

(SPEAKER 3, Enmore Design Centre, Sydney)

When discussing Training Package based training and the complexities of competency based assessment practices in TAFE design education, statements such as the one below suggested
that teachers found it necessary to work around the difficulties they encountered when trying to implement and meet the requirements of CBT and the Training Packages.

“I think generally there’s a, there’s something of a problem with baseline competency training given that we work in an industry or a range of industries that want more than mediocrity. They’re really looking for real pursuit of excellence and that’s something that training on its own is not really necessarily addressing terribly. Well the training maybe addressing it but the assessment process doesn’t really address it and measure it – excellence.”

(SPEAKER 1, TAFE Tasmania, Hobart)

“And what it actually creates is a system where we have to find ways around that and then we’re in conflict with whoever is giving us the money because we’re trying to keep educational relevancy. And that’s why we have all this discussion about defending the rights of people to learn and versus box filling.”

(SPEAKER 3, Enmore Design Centre, Sydney)

The following quotation from the Leederville TAFE focus group outlines the approach used to provide building design/drafting training and how it is broadly implemented. In this approach, the premise is that unless students learn about the related ‘construction theory’, they are not capable of drawing the required technical architectural sections and details. On their part, the teachers carefully plan and coordinate the sequence of theory topics and the practical project tasks that will allow students to apply their knowledge. The three key strategies and settings for this training delivery include face-to-face classroom teaching, lectures, CAD laboratory and studio project-based teaching and project work.

“Well one of the key things in the whole delivery system is that unless they’ve learnt it in ‘construction’ they can’t draw it. So coordinating what they learn in one subject with what they do in another subject is one of the key things we have to manage in the whole course. Once they’ve learned the theory then the ‘drawing’ classes are designed to sort of apply that theory. So we work it so that when they learn about walls in ‘construction’ they start to draw the walls in ‘drawing’ and then in the first semester they learn about CAD so don’t get them to do any real serious CAD drawing until they’ve learnt those basic skills. So, most of the CAD comes in Stage 2. So just getting everything in its right and correct order is the key to most of our delivery. The delivery is done face-to-face in the classrooms. Things like ‘construction’ are usually done in a lecture format. Drawings are done in a studio format and CAD is a sort of a mixed bag of both teaching and studio.”

(SPEAKER 5 WA TAFE, Leederville)

Some of the more critical statements about the current state of affairs in TAFE design education due to the current emphasis within the system on ‘accountability’, ‘measurement’
and ‘compliance’ suggest that this focus undermines the teachers’ and students’ goodwill and trust.

“For me personally that’s one of the reasons why I’m quite happy to exit education at this level now because it’s been a complete curse. The management models of measurement, compliance have almost destroyed in many areas the faith and the goodwill and the trust the staff and the students. The students also start to realise ‘Gee they’re only concerned about whether I’m here because they get the money.'”

(SPEAKER 1, Box Hill TAFE, Melbourne)

“We’re bordering, I would say we’re past the point of over documenting because we’re now asked to validate every single aspect of the documentation. It’s an ever growing bureaucracy. It is becoming a serious impediment to my professional practice as a teacher and as a leader in that area and I’m carrying as much as I can of the stuff but at the end of the day…”

(SPEAKER 3, Enmore Design Centre, Sydney)

When interpreting transcripts it is always possible to introduce several different aspects, and the chosen interpretation depends on the context of talk and to whom it is intended. Usually it consists of multiple, both ‘positive’ and ‘negative’ aspects which have been interpreted by the writer during the parsing process, and these are discussed with the results presented in the next section of this Chapter.
4.4 RECURSIVE PARSING RESULTS

Presented here are the results of the application of the Recursive Parsing Method (RPM) used to analyse coded data associated with the selected important parameters and their constituent variables, as noted in Section 3.6 of chapter 3.

This parsing is based on focusing on what the interviewees were saying in response to questions and statements made by the researcher – in order to minimise the input from the researcher. The transcript data were read to capture the main concepts and meaning of the participants’ statements and were organised in a table format, (see Table 4.4.1.2, page 168, which follows). Statements were categorised as positive, if they appeared to be making a supportive comment about the system parameter or its constituent variable, or as negative if they appeared to be making critical comments about the system parameter or its constituent variable. In some instances, and where appropriate, some statements were categorised as ‘neutral’ when they largely indicated a commonly accepted, existing situation or context as a neutral ‘fact of life’ within the TAFE design education system.

Presented hereunder in separate subsections, are examples of the results obtained from this recursive parsing process. They are discussed, in turn, in relation to the following parameters: ATTITUDES; CURRICULUM DESIGN; CURRICULUM DETERMINANTS; STUDENT QUALITIES; TEACHER QUALITIES; TEACHING STRATEGIES; WAYS OF LEARNING; ASSESSMENT and GRADUATE ATTRIBUTES. In each set of results, a model of the parameter and its constituent variables is followed by a matrix table showing the frequency distribution of coded references in relation to the parameter and its constituent variables. As noted, these models and matrices were generated using NVivo qualitative data analysis software. The NVivo matrices reinforce the significance of the important parameters and their constituent variables that were selected using the noted Pareto Principle. The next table shown in these sets of results, and this applies to all the following examples, shows the outputs of the recursive parsing process, followed by a brief summary and discussion of the main findings for each of the parameters and their constituent variables.
4.4.1 Attitudes

The model of the parameter ATTITUDES, and its constituent variables, is illustrated below in Figure 4.4.1.1. This figure shows the parameter and its interdependent relationship with the constituent variables. The opinions, views, aspirations and suggestions, as data provided by the interview participants, were coded using identified concepts related to ‘Teachers’ educational beliefs’. These beliefs reflect TAFE design teachers’ attitudes about ‘Education’ as a holistic and comprehensive approach to developing students’ capacities. These views were contrasted by attitudes towards ‘Training’ based on competency standards. The beliefs also reflect attitudes about ‘University’ educational approaches and outcomes; teachers’ postures towards ‘Teaching reform’ and ‘Resistance to change’ as well as attitudes regarding ‘Assumptions about TAFE teachers’.

Figure 4.4.1.1 Model of the parameter ATTITUDES and its constituent variables
The frequency distribution of all the coded references for the parameter ‘ATTITUDES’ is shown in the following table. The purple shading density indicates where most of the coded references are grouped.

Table 4.4.1.1: Matrix Coding Query showing the reference frequency distributions for model parameter ATTITUDES and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Atitudes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Assumptions about TAFE teachers</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>11</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Resistance to change</td>
<td>2</td>
<td>8</td>
<td>0</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Teachers' educational beliefs</td>
<td>16</td>
<td>64</td>
<td>17</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Teaching reform</td>
<td>2</td>
<td>24</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Training</td>
<td>8</td>
<td>42</td>
<td>15</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>8</td>
<td>University</td>
<td>5</td>
<td>15</td>
<td>5</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

As most of the coded references related to this parameter are associated with the constituent variable ‘Teachers’ educational beliefs’, and they occurred most frequently at TAFE Institutes in Victoria, three examples of results of the recursive parsing process from Victoria will be presented and discussed here. The following tables represent extracts of the transcripts from Victorian participants. They illustrate the participants’ views, attitudes and educational beliefs, and also demonstrate how the recursive parsing process was applied in order to arrive at meaningful outcomes. (Detailed parsing results and related transcripts are given in Appendix 3). Important passages have been underlined.

The Table 4.4.1.2, below, contains the views of the participants from Box Hill Institute of TAFE in relation to the variable ‘Teachers’ educational beliefs’.
Table 4.4.1.2 Recursive parsing results for the constituent variable ‘Teachers’ educational beliefs’ from participants interviewed at Box Hill TAFE Institute

<table>
<thead>
<tr>
<th>TAFE INSTITUTE</th>
<th>POSITIVE</th>
<th>NEUTRAL</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aiming to embed design skills into the daily practice of the manufacturing industry and across all programs at Box Hill</td>
<td>TAFE’s role is to prepare people for work not higher education although it can serve as a pathway to university</td>
<td>Australian manufacturing industry needs to invest more in local design skills development as manufacturing goes offshore</td>
</tr>
<tr>
<td></td>
<td>Design has been designated as one of economic drivers in Victoria</td>
<td>TAFE’s success is measured by rate of completion and employment destinations</td>
<td>Design skilling is currently concentrated in diminishing elite group - some design services being outsourced overseas</td>
</tr>
<tr>
<td></td>
<td>New TCF Training Package will address design thinking and skills development more effectively</td>
<td>We still experience a social divide between academia and technical training</td>
<td>National Training agenda is impacting on 80% of program delivery but States still control curriculum and there are differences</td>
</tr>
<tr>
<td></td>
<td>Curriculum based programs were designed with large input from education practitioners</td>
<td>In engineering and manufacturing there are design related jobs that don’t have to be at tertiary levels.</td>
<td>In TAFE I don’t believe we train people any better under training packages than we did before because I don’t think we teach the diagnostic skills, the analytical skills, research skills as well under Training Packages as they were under a curriculum-based programs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Generic core skills are not addressed in secondary schools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Teachers are not experienced with using aesthetic aspects of design Training Packages – more focussed on practical problem solving and functionality of products</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multimedia teachers had problems with the Film and TV, Radio and Multimedia Training Package as it is very lock step; has inflexible qualification requirements; has little design thinking or process and innovation focus; concentrates mainly on measurable skill outcomes; and competencies can be delivered at different levels resulting in confusion about actual level achieved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Many design teachers still struggling with the change from curriculum-based programs to implementation of Training Package-based programs designed with input mainly from industry. This is a problem because the research and cognitive aspects of design training have been diminished</td>
</tr>
</tbody>
</table>
Table 4.4.1.2 Recursive parsing results for the constituent variable ‘Teachers’ educational beliefs’ from participants interviewed at Box Hill TAFE Institute continued….

<table>
<thead>
<tr>
<th>TAFE INSTITUTE</th>
<th>POSITIVE</th>
<th>NEUTRAL</th>
<th>NEGATIVE</th>
</tr>
</thead>
</table>
| BOX HILL       |          |         | • It is unrealistic to expect employment destinations for a one-year trained artist or designer  
• TAFE Institutes now have to behave like schools and they’re not set up for it. We have one person who is involved in remedial literacy and numeracy training.  
• Since the introduction of Training Packages and competency based training in design areas, universities are not as interested in articulation between sectors because universities are still working from a curriculum-based model and they don’t trust the TAFE providers to actually integrate knowledge development into the training.  
• Historically there have been effective pathways between the sectors but we don’t see any evidence of that now. |
On the positive side, the participants indicated that:

- They were working towards establishing and integrating design skills development into manufacturing, and other program areas across the Institute, in response to the Victorian Government policy that recognises design as an important economic driver.

- It was anticipated that the revised Textile Footwear and Clothing (LMT07) Training Package\(^{174}\) [103] will address design thinking and skills development more effectively than the current version. (The writer’s scan of the relevant Training Package indicates that only in relation to fashion and textile design, are there units that develop studio design processes and a more emphatic focus on design and creativity (as viewed on the National training information Service NTIS website).

- There is also a belief that where there are still non-Training Package accredited programs, designed with much more significant input from education practitioners, those programs by implication addressed the essential design skills development.

The main critical comments from the parsing illustrated in Table 4.7.1.2 indicated that:

- Local manufactures need to invest more in design skill development to make those skills more widespread and the sector more competitive in the marketplace.

- Although the National Training Reforms were impacting on 80% of the training delivered there are still differences between the States as they retained control over curriculum.

- Teachers need professional development to teach aesthetic aspects of design, as most of their current experience relates to practical problem solving and product functionality.

- Multimedia teachers found the relevant Training Package difficult to implement due to its competency based characteristics and inflexible requirements.

- Design teachers are finding the transition from curriculum-based training to the implementation of Training Packages difficult because they feel that the research and cognitive aspects of design training have been diminished due to the mainly industry sourced input into their development.

Since the introduction of Training Packages articulation pathways between TAFE and the higher education sector are disappearing.

The results of this parsing process applied to coded data suggest that:

- The role of TAFE is primarily to prepare graduates for employment and that
- TAFE’s success is judged on the basis of program completion and employment success rates.

However, in the Box Hill interview SPEAKER 5 also suggested that it was unrealistic “to expect employment destinations for a one-year trained artist or designer.”

[Box Hill TAFE; SPEAKER 5, Reference 20; variable: ‘Teachers’ educational beliefs’]

Nevertheless, the practitioners interviewed at Box Hill TAFE also believe that TAFE design education can and should be considered to be part of the study pathway to the higher education sector, for those students who wish to continue their studies in this field. This is even though there are design related vocational destinations for TAFE graduates that do not require HE sector qualifications in the manufacturing and engineering industries. There is a lingering perception that there is a “social divide” between the two education sectors but this would need further study to define the extent to which this divide exists. The other interesting comment was that the introduction of Training Packages has not necessarily improved the quality of the training currently provided when comparing with programs delivered before their introduction because “I don’t think we teach the diagnostic skills, the analytical skills, research skills as well under Training Packages as they were under curriculum-based programs.” [Box Hill TAFE; SPEAKER 1; Reference 15].

Further, it was suggested by some of the participants from Box Hill TAFE that the generic skills embodied by the Employability Skills Framework are not being developed effectively in the secondary sector. This was placing an additional responsibility on the TAFE sector to provide remedial support for struggling students, but that TAFE is not resources adequately to do this. This perception would probably be challenged by the secondary educations practitioners and further exploration was beyond the scope of this study.
The next example is given by participants from the TAFE division of the Royal Melbourne Institute of Technology (RMIT), which is a dual sector institution. These participants provided data which, after recursive parsing, is presented in Table 4.4.1.3 below.
Table 4.4.1.3 Recursive parsing results for the constituent variable ‘Teachers’ educational beliefs’ from participants interviewed at RMIT TAFE Institute

<table>
<thead>
<tr>
<th>TAFE INSTITUTE</th>
<th>POSITIVE</th>
<th>NEUTRAL</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMIT</td>
<td>● The design learning outcomes in TAFE are very different from higher education. TAFE outcomes in a two-year diploma program are very much about applied knowledge. In a degree program if we’re talking about design it is learning the theories of design and being able to translate that into space; human behaviour, and not being caught up in all the detail that we get caught up with. ● I agree that at a TAFE level it is important that students have sensitivity to ideas because you can actually ruin the whole concept by inappropriate detailing or inappropriate selection of materials. ● But I also think the word ‘design’ is really abused and not fully understood and not everybody should be calling themselves designers. In the TAFE we want to very clearly let people know what we’re about. ● Our graduates are para-professional and that’s not to devalue it in any way. I think that it’s a very interesting model when you put different groups of professions together when you’ve got to run a large project and you’ve got some TAFE graduates who can feed into that. You start to build a very interesting team of people. ● I think that if we can aim to develop students with great creativity, great awareness about the majority of issues to do with design without maybe a high degree of sophistication some of the products they design are going to be fantastic.</td>
<td>● In higher education I think the outcome and the job that they’re going to get into in the workforce is a very different one. ● Design practice is where there are those who are born with a gift, talent and there are those who we say are creative to various degrees but any case they are all focussing on developing that capacity in themselves. Learning some methodologies that will lead to creative outcomes and innovation. I think you can teach them, but there has to be some starting base to work with and if you come across an eighteen year old that has absolutely no eye for detail; no flair to go to decoration and design then really I don’t know if they should be doing that program. ● Students have to multi-task all the time. And we think that’s a very good training for life because that is what most employers are going to ask you to do it. To have a stress-free study period of two years would be lovely but totally unrealistic. ● There is a maturation process that happens because students reach a higher level in another unit of design and they mature through that additional process. ● We have a very creative; a very good way of dealing with the creativity component of design because I think the thing that is the gap between ourselves and the higher education is that exposure to the philosophy behind design. It’s that breadth of exposure to it through reading, through seminars, through a whole lot of other things that can be brought into it. That’s not our brief in the sense that we’re doing vocational training. So I don’t think that gap is going to be closed so quickly. And I don’t think that it’s a bad thing.</td>
<td>● There is a dilemma for TAFE at the moment in that TAFE generally has a maturing workforce and they are grappling with technology at the level and speed that it’s been expected by not only industry but the students themselves when they enter the first stage of programs now. And the other part of that is trying to maintain stimulated staff. We need teachers that feel their creativity is still as valued as it used to be. But unless they engage with technology they’re not clever anymore. ● There are tensions with industry requirements as well. In the building design program the completion of the program is one component along with some industry experience that graduates require to be a registered practice. There is this tension about the wonderful things that the staff want to do around design, but at the same time in the relatively short program – a two year program, students are supposed to have the capabilities to be competent practitioners in the industry and they actually have to register through the Building Commission of Victoria. It is very hard for them not to approach design in a lateral and creative way. ● Staff members know that and it is a tension for the staff. They want to pass on those design skills and mentor suitable activity. But at the same time they know that within a short period of two years they’ve got to hone the practical skills as well. ● Sometimes in our programs the number of hours allocated to the design unit is not very adequate.</td>
</tr>
</tbody>
</table>
From Table 4.4.1.3, the results on the positive side indicate that:

- There was recognition of the differences in learning outcomes between TAFE and higher education sectors.
- In TAFE the emphasis is on developing applied design skills and knowledge and students’ sensitivity to design concepts and associated aesthetics.
- TAFE provides paraprofessional training and graduates provide supporting roles to designers and design teams.
- With greater focus on developing creative thinking and problem solving skills, it was suggested that graduates will be capable of contributing to new design product development.

The balanced neutral views expressed in Table 4.4.1.3, indicated that:

- There are different employment destinations for graduates from the TAFE and the HE education sectors. Further, it was expected that the existing gap between the educational outcomes of the two sectors will remain even though “We have a very creative; a very good way of dealing with the creativity component of design.” [RMIT interview 2; SPEAKER 1; reference 45].
- When it comes to students, it was assumed there are those that have innate creative design talents and others who don’t necessarily have them. However, there is a conviction that all students are focussing on learning design methods to develop their creative design capacity, and that ways to teach them existed provided that there was a starting point to work from. In the absence of such a starting point, (that indicated some design appreciation and flair), students should be encouraged to consider other study options.

It was suggested that students have to multi-task all the time, and that is very good training for life because that is what most employers expected of employees on the job. Multi-tasking also enhances students’ maturation process as they progressed through the design course. Again this would require further study to establish the role of multi-tasking in extending the maturity level of students.
From Table 4.1.3, the two main challenges and concerns discussed by the participants were related to:

- The aging staff profile and the need to maintain staff enthusiasm, motivation and commitment to keep up with the increasingly frequent technology and industry practice changes and
- The perceived and recognised tensions between industry and regulatory requirements, and the need to develop students’ creativity and design as well as practical technical skills within the available 2 year timeframe in preparation for industry employment.

The third example comes from another dual sector institution that was surveyed, namely the Swinburne University TAFE Division. Two staff members from the graphic arts/design area were interviewed and their comments in relation to the parameter ‘ATTITUDES’ and associated constituent variable ‘Teachers’ educational beliefs’ are represented in the Table 4.4.1.4 below.

Table 4.4.1.4 Recursive parsing results for the constituent variable ‘Teachers’ educational beliefs’ from participants interviewed at Swinburne TAFE Institute

<table>
<thead>
<tr>
<th>TAFE INSTITUTE</th>
<th>POSITIVE</th>
<th>NEUTRAL</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWINBURNE</td>
<td>• In comparison to the way graphic art diploma curriculum has been traditionally delivered by other institutes, we always had a more holistic, inclusive method and philosophy about what students need out of the course. First and foremost is the training to become good Mac operators with knowledge of reprographics. • Design is the major focus of the programmes that we deliver. • We’re not interested in training just technicians. We have identified that there is a need for more holistic designers, finish artists that do more than just finish art. • I try to balance those two things (theory and practice). I really try and instil the notion fairly early that it’s not sort of all pie in the sky stuff.</td>
<td>• Training Packages are in their very early days. We’ve been working in terms of curriculum and subjects up till now. • We’re just going through Training Package implementation and trying to sort out in our mind how that will be done. I think most of the issues there for me are going to be around assessment and the way we deliver will effectively not change very much. • There have always been two sub-streams of design – the functional design and decoration style design. • There are situations where you have that divine inspiration. Something happens and you look at your own work and you go ‘I don’t know why it’s good but I sort of like it.’ Learning to trust that. But: ‘Alright but can I sell that to the client?’ How can I explain my thing?</td>
<td>• I’ve been a practicing designer for fifteen years so as soon as I walked in the door here I was in effect my own industry committee. Teachers are often in a better position to get a broad overview of what the industry needs.</td>
</tr>
</tbody>
</table>
As a result of the above recursive parsing, the main positive views that emerged were that:

- There was always a more holistic, inclusive approach and philosophy to what students needed to achieve out of the design courses in addition to technical competence.
- Although design is the major focus, teachers strive to achieve a balance between creative design and practical technical skill development.
- The current programs are largely non-Training Package based courses; however the implementation of Training Package courses was underway and it was not anticipated that this would impact more significantly on assessment practices rather than the teaching practices.
- Students are encouraged to trust their creative instincts and to develop the capacity to explain and promote their work rather than to approach design problems using logical thinking processes.
- There appears to be a tension between the need to consult stakeholders widely to identify training needs, and the belief that due to extensive industry experience “Teachers are often in a better position to get a broad overview of what the industry needs”. [Swinburne TAFE interview; SPEAKER 1; reference 4].

The last point of view expressed by the quotation above, tended to suggest to the writer that perhaps the approach to design education used in this case, may be largely teacher-centred; however this would need to be investigated further.

4.4.2 Curriculum Design

The model of the parameter ‘CURRICULUM DESIGN’, and its constituent variables, is shown in Figure 4.2.1. The opinions, views, aspirations and suggestions data provided by the interview participants were coded using concepts related to the constituent variables listed below:

- ‘Entry requirements’
- ‘Study pathways’
- ‘Structure’
- ‘TP based’
- ‘Accredited non-TP based’
- ‘Adult learning principles’ and
- ‘International models’
Figure 4.4.2.1 below, depicts the model of the ‘CURRICULUM DESIGN’ parameter and its constituent variables ‘Training Package based’; ‘Accredited-non TP’; ‘Structure’; ‘Study pathways’; ‘Entry requirements’; ‘Adult learning principles’ and ‘International models’. These variables strongly influence the educational rationale of VET design curriculum.

As before, the frequency distributions of all the coded references for the parameter ‘CURRICULUM DESIGN’ are shown in the following Table 4.4.2.1 overleaf. The purple shading density indicates where most of the coded references are grouped.
Table 4.4.2.1: Matrix Coding Query showing the reference frequency distributions for model parameter CURRICULUM DESIGN and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Curriculum design</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Accredited</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>3 : Adult learning principles</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>4 : Entry requirements</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>5 : International models</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6 : Structure</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>7 : Study pathways</td>
<td>0</td>
<td>14</td>
<td>9</td>
<td>18</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>8 : TP based</td>
<td>4</td>
<td>20</td>
<td>10</td>
<td>8</td>
<td>14</td>
<td>19</td>
</tr>
</tbody>
</table>

It can be seen in Table 4.4.2.1 above, that the highest frequencies of coded references were related to the constituent variables ‘Training Package (TP) based’ and ‘Study pathways’, and they occurred in Victoria, Queensland and Western Australia.

As noted before, detailed results are given in Appendix 3.

The following Tables 4.4.2.2 and 4.4.2.3 show examples of the results from the recursive parsing process applied to the transcript of interviews conducted with participants from the Leederville and Perth Central campuses of WA TAFE Institutes regarding the parameter ‘CURRICULUM DESIGN’ and its constituent variable ‘Study pathways’.

Table 4.4.2.2: Recursive parsing results for the constituent variable ‘Study pathways’ from participants interviewed at WA TAFE, Leederville Institute Campus

<table>
<thead>
<tr>
<th>INSTITUTE</th>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
</table>
| LEEDERVILLE | • Some students use TAFE as a stepping stone into architecture at university  
• The key focus of TAFE training is on preparing for employment in industry  
• Some university students change their mind and come to study at TAFE instead (second chance) | • Only a small number of TAFE graduates go to university (Architecture, interior design and building construction) – 80% go into industry employment  
• More TAFE graduates are going on into university than university students moving to TAFE |

In the first example, as in Table 4.4.2.2, the participants’ comments suggested that:

- Some students consider TAFE building design and architectural drafting programs as a ‘stepping stone’ into university courses in architecture.
There are more TAFE students who decide to continue their studies at university than former university student who do TAFE building design and architectural drafting programs after leaving the university architecture course.

Former university students may regard the TAFE programs as a second chance to gain qualifications that will enable them to work in the architectural design industry. However, this would require further research to confirm those intentions. These study pathways exist even though the stated main focus of TAFE is to prepare graduates for employment. The majority (80%) of TAFE building design/ interior design and architectural drafting graduates engage in industry employment after completing their programs.

In the second example, as shown in Table 4.4.2.3 below, the participants described the study pathway to gain entry into Certificate IV level programs. Students were required to complete the underpinning Certificate III ‘pre-trade’ and generic foundation design programs. The strategy used to establish these study pathways involved the development of ‘building blocks’ made up of common core units/ modules.

<table>
<thead>
<tr>
<th>INSTITUTE</th>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA CENTRAL</td>
<td>Students have to complete a Certificate IV qualifications to enter into Diploma/ Advanced Diploma (accredited) programs</td>
<td>No data</td>
</tr>
<tr>
<td></td>
<td>Student have the opportunity to complete two Cert III pre-trade courses (Cert III in Design fundamentals and Cert III in pre-press) before undertaking a Cert IV course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Developing ‘building blocks’ as part of study pathways that include common core units/modules</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4.2.3: Recursive parsing results for the constituent variable ‘Study pathways’ from participants interviewed at WA TAFE, Central Perth Campus
4.4.3 Curriculum Determinants

As in previous cases, the model of the parameter ‘CURRICULUM DETERMINANTS’, and its constituent variables is illustrated in Figure 4.4.3.1. This figure shows the parameter and its interdependent relationship with the constituent variables. The opinions, views, aspirations and suggestions as data provided by the interview participants were coded using identified concepts related to all the constituent variables shown in Figure 4.4.3.1. (As before, refer to Table 3.7.1 in chapter 3 for definitions of the parameter and its constituent variable adopted in this study).

Figure 4.4.3.1: Model of the parameter CURRICULUM DETERMINANTS and its constituent variables

The model indicates that the content and learning outcomes of the curriculum for the required training depends on inputs related to the constituent variables shown in Figure 4.4.3.1 in order to develop the essential knowledge and skills that turn graduates into effective employees. After the completion of the coding process, the frequency distributions of all the coded references for the parameter ‘CURRICULUM DETERMINANTS’ and its constituent
variables are shown in Table 4.4.3.1, overleaf. The shading density indicates where most of the coded references are grouped.

Table 4.4.3.1: Matrix Coding Query showing the reference distributions for model parameter CURRICULUM DETERMINANTS and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Curriculum Determinants</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Articulation</td>
<td>8</td>
<td>21</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3 : Design practice</td>
<td>6</td>
<td>34</td>
<td>37</td>
<td>36</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>4 : Emerging training needs</td>
<td>10</td>
<td>34</td>
<td>18</td>
<td>24</td>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>5 : Getting a job</td>
<td>2</td>
<td>11</td>
<td>4</td>
<td>12</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>6 : Industry feedback</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>16</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>7 : Industry training needs</td>
<td>9</td>
<td>46</td>
<td>19</td>
<td>33</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>8 : National Training Standards</td>
<td>4</td>
<td>8</td>
<td>14</td>
<td>8</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>9 : Qualifications</td>
<td>4</td>
<td>11</td>
<td>14</td>
<td>1</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>10 : Resources</td>
<td>1</td>
<td>28</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>11 : Skill gap</td>
<td>7</td>
<td>26</td>
<td>16</td>
<td>12</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>12 : Student training needs</td>
<td>12</td>
<td>38</td>
<td>11</td>
<td>15</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td>13 : Technical operational skilling</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>14 : Technology</td>
<td>0</td>
<td>12</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>25</td>
</tr>
</tbody>
</table>

Once again, it can be seen from Table 4.4.3.1 that the highest frequency distributions relate to the constituent variables ‘Design practice’, ‘Emerging training needs’ and ‘Industry training needs’, and that the main sources of coded data came from interviews conducted in Victoria, Western Australia and Queensland. (As noted previously, detailed results are given in Appendix 3).

Two examples from different Institutes in Queensland and Victoria are presented and discussed here. In the first example, the results from the parsing process have been applied to data from Cooloola TAFE Institute, and related to the variable ‘Emerging training needs’. The participants’ views were categorised as positive, when the views suggested future training needs, and negative when they indicated some criticism, issues or impediments to addressing the emerging training needs.

The results arising from parsing process applied to the Cooloola TAFE data’ are summarised in Table 4.4.3.2, on the following page.
Table 4.4.3.2: Findings arising from recursive parsing process applied to data obtained from design teachers at Cooloola Institute of TAFE for the constituent variable ‘Emerging training needs’

<table>
<thead>
<tr>
<th>COOLOOLA FINDINGS</th>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of CAD into drafting has opened opportunity to conduct deeper research into design aspects of projects as working drawing production takes less time and reduced the workload for students.</td>
<td>Design education not keeping up with changing industry practices.</td>
<td></td>
</tr>
<tr>
<td>In order to streamline the process currently the more demanding requirements of the Development Approval process are placing greater emphasis on compliance with planning and development requirements in the curriculum of arch drafting/ building design programs.</td>
<td>Information about program outcomes and aspirations is too confusing.</td>
<td></td>
</tr>
<tr>
<td>Need to work more closely with local government development approval authorities and collaborate with consultants.</td>
<td>Students are confused by advocacy of opposing values.</td>
<td></td>
</tr>
<tr>
<td>Sustainability, environmental impact minimisation and energy efficiency are becoming more prominent aspects of building design training as building regulations are increasingly reflecting higher levels of performance standards.</td>
<td>Not enough time to develop trust and partnerships between students and presenters/ facilitators.</td>
<td></td>
</tr>
<tr>
<td>Increasingly consideration is given to alternative solutions to traditional commercial building practices particularly in relation to heating and cooling.</td>
<td>Technological innovation is transforming industry practice, processes, employment roles and skills sets, making some redundant and requiring others to be multi-skilled.</td>
<td></td>
</tr>
<tr>
<td>There is a new opportunity emerging for the role of energy auditor who has some building design skills.</td>
<td>New technology (CAD) is making traditional design and rendering skills redundant – there may be opportunities in future to revive them once again as a point of difference from the common practice.</td>
<td></td>
</tr>
<tr>
<td>Architectural digital photography skills are emerging as a new skill set for building designers.</td>
<td>There is a high level of competition in the design industry and a quick turn over of new firms starting up and not surviving.</td>
<td></td>
</tr>
<tr>
<td>Impact of digital media is changing wedding photography practice and services.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of the local and national industry market and practicing firms will assist students to approach employment and career planning more strategically.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In summary, the main findings from Table 4.4.3.2 are that:

- The introduction of computer based design and drafting tools has allowed a greater emphasis on compliance with development regulations and building codes, sustainable and alternative design approaches to be built into the training.
- There are new emerging career opportunities for graduates with a design background to train as energy auditors.
The introduction of digital photography technology is impacting on the architectural design and photography industries by requiring new skills.

Greater emphasis is required to make students more aware of their industry employment market needs and to develop a more strategic approach to career planning to avoid redundancy and unemployment.

Design education in TAFE needs to keep up with industry changes.

There is a need to clarify information provided to industry and students about TAFE design education outcomes.

The second example is taken from Swinburne TAFE, where the participants’ background is in graphics design and arts education. The distilled results, arising from the application of the recursive parsing process to data associated with the parameter ‘CURRICULUM DETERMINANTS’ and its constituent variable ‘Emerging training needs’ are summarised in Table 4.4.3.3 overleaf.

Summarising the main findings from Table 4.4.3.3:

- The design and production processes in the graphics and printing industries are becoming more integrated and interdependent leading to less specialised occupations within their fields.
- Increasingly sophisticated, user friendly software and hardware is driving the changes taking place in these industries.
- The increasing availability and affordability of the technology allows smaller practices to enter and compete in the industry market.
- The pattern of employment in these industries is moving towards greater freelance self-employment.
- As a result of reduced cost the demand for graphic design and printing services is exceeding industry’s capacity to service clients’ needs.
- There is a need to improve presentation and marketing skills of employees in the graphics industry.

These findings provide a challenge to the TAFE design education system to address these needs in a timely manner. However, the findings also show that:
• More time is required to develop students’ competence in using a wider range of sophisticated design and production skills.
• There is an urgent need to invest in order to keep up with the rapid pace of technological change in these industries.
• The extent of convergence in the graphics, multimedia and illustration sectors may be limited and not as extensive as is assumed.

Table 4.4.3.3: Recursive parsing results for the constituent variable ‘Emerging training needs’ from participants interviewed at Swinburne Institute of TAFE

<table>
<thead>
<tr>
<th>SWINBURNE</th>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINDINGS</td>
<td>In advertising graphic design and the printing industry there are changes that integrate the design and production processes making specialised occupation, particularly in production redundant. Designers now need more technical knowledge related to production and production staff needs to know more about the design process to effectively collaborate. The changes are driven by increasing use of more sophisticated hardware and software. The available technology is becoming more user friendly and supports individuals to work independently resulting in downsizing of large organisations and more self employment as freelance practitioners. The volume of client work as a result of reduced design and production costs is starting to exceed the capacity of individuals to cope and there is a re-emergence of demand for specialist skills. The processes of graphic design and graphic artwork are integrated now and graduates need capacity to manage technical aspects of projects’ production quality and costs. There is a shortage of graphic artists compared to the number of graphic designers. The emerging model of commercial practice is based on small multi-disciplined teams (4-5 people) that provide services and manage the business. Designers need to improve their project presentation skills in order to effectively communicate ideas and concepts and to educate their clients and the public.</td>
<td>The duration of diploma and advanced diploma programs has been reduced and there is a need to increase training by another year to develop proficiency in the growing number of essential software packages being used in industry practice. The pace of change in reprographics is rapid and it is difficult to keep up and there is a need for industry market research and appropriate policy settings to support smaller independent companies. The degree of convergence in the graphics, multimedia and illustration sectors is limited to certain levels and as great as is assumed.</td>
</tr>
</tbody>
</table>
4.4.4 Student Qualities

The parameter ‘STUDENT QUALITIES’ and its constituent variables was investigated and is illustrated below in Figure 4.4.4.1. This figure illustrates graphically the parameter and its interdependent relationship with the constituent variables ‘Student selection’; and ‘Selection criteria’. These variables are concerned with the methods and criteria used to select students into design education programs. The other two important variables, ‘School leavers’ and ‘Mature age’ are concerned with describing applicants’ backgrounds and experience that they bring with them into the design education programs. As for the previous cases, the opinions, views, aspirations and suggestions as data provided by the interview participants were coded using identified concepts related to all the constituent variables shown in Figure 4.4.4.1 below.

The frequency distribution of all the coded references for the parameter STUDENT QUALITIES is shown in Table 4.4.4.1 which follows. The purple shading density indicates where most of the coded references are grouped.
Table 4.4.4.1: Matrix Coding Query showing the reference distributions for model parameter STUDENT QUALITIES and its constituent variables

<table>
<thead>
<tr>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Student Qualities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Mature age students</td>
<td>5</td>
<td>33</td>
<td>2</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>3 : School Leavers</td>
<td>3</td>
<td>45</td>
<td>10</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>4 : Selection criteria</td>
<td>3</td>
<td>19</td>
<td>6</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>5 : Student selection</td>
<td>3</td>
<td>47</td>
<td>13</td>
<td>18</td>
<td>24</td>
</tr>
</tbody>
</table>

The two constituent variables with the most coded references, (sourced from the interview transcripts) belonging to the parameter ‘STUDENT QUALITIES’ are ‘Student selection’ and ‘School leavers’. For the purposes of presenting and discussing the results of the recursive parsing process, three typical extracts were selected from the data obtained from interviews at Box Hill TAFE in Victoria, Croydon Park TAFE in South Australia, and Southbank TAFE Institute in Queensland. (As noted before, detailed results are given in Appendix 3).

Table 4.4.4.2 shows the extract from Box Hill TAFE. (Detailed results are given in Appendix 3).

Table 4.4.4.2 Recursive parsing results for the constituent variable ‘Student Selection’ from participants interviewed at Box Hill Institute of TAFE

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is a selection process for entry into design programs which is open to everyone – depending on level applied for, there may be pre-requisites for entry.</td>
<td>• Student apply through Victorian Tertiary Admissions Centre (VTAC) which is perceived as rigorous and regimented and staff at Box Hill are philosophically opposed to student selection using this approach.</td>
</tr>
<tr>
<td>• Must have year 12 for diploma and advanced diploma OR be mature age with interest in the design area of study.</td>
<td>• Applicants’ aptitude, motivation, potential to succeed and attitude are not always at appropriate levels.</td>
</tr>
<tr>
<td>• Mature age students get a more generous consideration of their suitability.</td>
<td>• Using tertiary ranking scores makes it difficult for applicants to meet the required score (80) and discriminates against those that are studying the relevant underpinning subject in secondary school.</td>
</tr>
<tr>
<td>• In addition to VTAC, staff interview applicants and review a portfolio of work in line with CEO directive.</td>
<td>• There are variations in the selection process because in some cases the portfolio is used as a basis for short listing applicants for an interview.</td>
</tr>
<tr>
<td>• There are specific portfolio guidelines – up to 15 pieces of work including ‘back-up’ developmental work, finished work and photographs. These guidelines are used widely in Victorian TAFE.</td>
<td>• Staff feel they are required to reach enrolment targets and this sometimes results in recruitment of less suitable students.</td>
</tr>
<tr>
<td>• Applicants are required to discuss their work.</td>
<td>• Applicants are required to bring evidence that demonstrates that they have relevant underpinning skills and are interested and motivated.</td>
</tr>
</tbody>
</table>

The views of the participants were categorised as positive when they described aspects of the current entry requirements, the associated student selection processes and selection criteria.
The participants’ views were categorised as negative when they expressed critical comments about aspects of the student selection process.

The data in Table 4.4.4.2 suggests that:

- Applicants for diploma/ advanced diploma programs must have completed Year 12 in the secondary education sector or the equivalent, or be a mature age applicant.\(^{175}\)
- Although entry into design programs is open to everyone, the applicants must undergo a selection process that includes a Victorian Tertiary Admissions Centre (VTAC) interview to present and review a portfolio of work to provide evidence of the applicant’s underpinning skills, interest in design and motivation.
- This approach to student selection is commonly used in Victoria using similar portfolio guidelines.

From a critical point of view (since the introduction of the centralised student selection process), it is noted that design teaching practitioners at this TAFE Institute are not very supportive of the selection process because new students don’t always demonstrate the required level of aptitude, attitude and motivation to complete their studies successfully. The teaching staff said that the required tertiary education ranking (TER) score is set too high, and that it is difficult to achieve this score when students are not completing the generally accepted core academic subjects like mathematics, science or English as part of their preparation for entry into tertiary sector studies. Further, participants suggested that there were inconsistencies in the selection process and the main consideration that drives student selection is the achievement of enrolment targets or quotas where they exist.

The second example discussed here comes from participants at the Croydon Park campus of the SA TAFE Institute. Table 4.4.4.3 shows the result of the recursive parsing process in this case.

\(^{175}\) Mature age students are defined as students who turn at least 20 during their first year of enrolment
Table 4.4.4.3: Recursive parsing results for the constituent variable ‘Student Selection’ from participants interviewed at SA Institute of TAFE, Croydon Park

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students will be selected into programs in 2006 by applying through the South Australian Tertiary Admissions Centre (SATAC).</td>
<td>• Not all staff are happy with the change to the SATAC student selection process because they feel that they were not consulted adequately before the decision to implement the change and the interview component has been removed.</td>
</tr>
<tr>
<td>• Previously students applied directly to the program area and submitted a portfolio of photographic or other related work for selection to attend an interview.</td>
<td>• Staff see the new selection process as a centralised administrative process.</td>
</tr>
<tr>
<td>• Interviewed students were awarded points for their photography portfolio and the interview.</td>
<td>• Applicants were expected to have already achieved a certain standard of work for selection into the program – ‘more than just the ability to produce work at the level we expect to come into the course’.</td>
</tr>
<tr>
<td>• The selection criteria used to date had a range of categories that the portfolio had to address – drawing skills using a range of media; design qualities; quality of photography work; computer graphics skills – for both self expression and recording observations.</td>
<td>• Applicant often lacked industry awareness or of the opportunities that it offers.</td>
</tr>
<tr>
<td>• With drawings the requirement was to include a range of drawings based on observation studies of objects/subjects rather than imaginary pop-culture drawings - ‘heavy metal’ or Japanese style comics.</td>
<td>• Applicants’ choices are often made on the basis of what they see on TV or media and they are not aware of the range of alternative aspects and facets of industry practice.</td>
</tr>
<tr>
<td>• Students had to explain what they would contribute to the course during the interview.</td>
<td>• The public perception is that art and design is fun, easy and doesn’t require much study; it is not stressful – this is the opposite of what the teachers are trying to point out and dispel.</td>
</tr>
<tr>
<td>• Student had to demonstrate their passion, potential to develop the existing skills and their capacity to be a team player.</td>
<td>• Not all school leavers from some high schools have good portfolios.</td>
</tr>
<tr>
<td>• Consideration was given to the amount of time and effort given to research and complete tasks/projects and to develop something significant – presentation?</td>
<td>• It largely depends on which high school students went to whether they are seen as being adequately prepared for their design studies in terms of communication; being able to source information and develop ideas and concepts – city school leavers from major schools seem to be better than regional; varies greatly.</td>
</tr>
<tr>
<td>• The selection process aims to determine if applicants have the drive to ‘put their head down and nose to the grindstone and actually put the effort in’.</td>
<td>• Staff are concerned by the imposed enrolment limits/quotas and therefore want to ensure that the 30 they enrol are the best that they can be to achieve a high completion rate – no growth potential because of caps.</td>
</tr>
<tr>
<td>• Students who complete a art/ design foundation year program in TAFE have well developed portfolios and evidence of established design thinking and practice methods – higher level than school leavers.</td>
<td>• Although selection is made centrally through the state admissions centre teachers intend to informally interview applicants with portfolios and question them about their work to get to know the students.</td>
</tr>
<tr>
<td>• Although selection is made centrally through the state admissions centre teachers intend to informally interview applicants with portfolios and question them about their work to get to know the students.</td>
<td>• All data provided by the interview participants in Table 4.4.4.3 indicated that:</td>
</tr>
</tbody>
</table>

The data provided by the interview participants in Table 4.4.4.3 indicated that:

- Beginning in 2006 students seeking to enter design programs would be selected using a centralised process conducted by the South Australian Tertiary Admissions Centre (SATAC).
- This centralised process replaced the previous student selection process that involved direct application to the TAFE institution, and where students were interviewed with their portfolio of work as part of the selection process to demonstrate their skills, aptitude for teamwork and motivation.
• Students who completed a design foundation program that was offered by SA TAFE generally presented well developed portfolios compared to other applicants who were finishing secondary education.

• Although the new selection process would be implemented centrally, the teachers intended to continue to interview applicants locally.

• Not everyone was supportive of the change to the centralised student selection process because it was felt that there had not been adequate consultation before its development and implementation.

• The new selection process was largely driven by administrative considerations.

• The skills at entry level were set too high and that applicants often lacked adequate awareness of career options in the design/creative industries.

• The public’s and applicants’ perception about the expectations and demanding nature of studying in design fields were unrealistic and that this perception needed to be changed.

• There are concerns about the implications of enrolment quotas on prospects for growth in design education fields.

In this third example of data, (Table 4.4.4.4 below), provided by participants from Morningside Campus, Southbank Institute of TAFE it was indicated that:

• The student selection process was managed centrally through an admissions centre (QTAC) for all programs.

• Achievement of Year 10 English was a pre-requisite entry requirement, however applicants for design/creative industry related programs also had to submit a portfolio of their work.

• Due to low demand for design programs most applicants were likely to be successful in gaining a place.

• Since the introduction of competition in the training marketplace, teaching staff appear to be sceptical about the selection process as the main consideration now seems to be ensuring that enough students are enrolled to make the program delivery viable.

• Some lower certificate level programs were being targeted by welfare agencies to place unsuitable students who lacked the interest and motivation to succeed because they
were perceived to be cheap and easy study options. This resulted in the majority of students being very young and inexperienced.

Table 4.4.4.4: Recursive parsing results for the constituent variable ‘Student Selection’ from participants interviewed at Southbank Institute of TAFE, Morningside

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection is centralised through an admissions centre.</td>
<td>Staff appear to be sceptical about selection processes because they now find themselves in a competitive business environment where the imperative is to enrol students to make programs viable.</td>
</tr>
<tr>
<td>Take on anybody due to low demand.</td>
<td>If quota is not filled after QTAC round of offers TAFE can offer places directly to applicants on a case by case basis.</td>
</tr>
<tr>
<td>Applicants must have standard achievement in Year 10 English.</td>
<td>Some lower level certificate programs were targeted by Centrelink to enrol those who were eligible to receive unemployment or New Start benefits into interesting and cheap training – students lacked interest and commitment.</td>
</tr>
<tr>
<td>For diploma and advanced diploma programs student apply through the admissions centre.</td>
<td>Mostly getting very young applicants now – not many mature age students with some life experience.</td>
</tr>
<tr>
<td>Applicants for graphic design, photography and film and TV must include a portfolio with their application.</td>
<td></td>
</tr>
</tbody>
</table>

4.4.5 Teacher Qualities

As with the approach used in all the previous examples, the model of the parameter ‘TEACHER QUALITIES’ and its constituent variables, is illustrated in Figure 4.4.5.1 below. This figure shows the parameter and its interdependent relationship with the constituent variables ‘Staff qualifications’; ‘TAFE teachers as change agents’ and ‘Innovation leadership’. These variables are mainly concerned with the relevant underpinning qualifications and industrial experience that are taken into consideration when recruiting teachers, as well as their capacity to anticipate and respond to change in order to lead innovation in TAFE design education. The opinions, views, aspirations and suggestions that were provided as data by the interview participants, were coded using identified concepts related to all the relevant constituent variables.
The frequency distributions of all the coded references for the parameter ‘TEACHER QUALITIES’ are shown in Table 4.4.5.1. As before, shading density indicates where most of the coded references are grouped.

Table 4.4.5.1: Matrix Coding Query showing the reference distributions for model parameter TEACHER QUALITIES and its constituent variables

<table>
<thead>
<tr>
<th>Parameter</th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Teacher Qualities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Innovation leadership</td>
<td>9</td>
<td>15</td>
<td>13</td>
<td>14</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>3 : Staff qualifications</td>
<td>10</td>
<td>27</td>
<td>12</td>
<td>11</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>4 : TAFE teachers as change agents</td>
<td>1</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

The two constituent variables of the model parameter ‘TEACHER QUALITIES’ with the most coded references sourced from the interviews were ‘Staff qualifications’ and ‘Innovation leadership’. For discussion purposes, typical results obtained from the recursive parsing process are presented here in Table 4.4.5.2. This represents the views expressed by participants from RMIT.
Table 4.4.5.2 Recursive parsing results for the constituent variable ‘Staff qualifications’ and ‘Innovation leadership’ from RMIT participants

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The casual and fractional contract teachers bring in current best practice and contribute to a very dynamic team. Full time staff provide knowledge of institute’s corporate values, required compliance standards, operational procedures, leadership/coordination and stability by coaching/mentoring casuals onsite every day.</td>
<td>• Sometimes industry practitioners recruited to teach with no prior TAFE experience, find it difficult to pitch their teaching at the appropriate levels because of their high expectations.</td>
</tr>
<tr>
<td>• Professional practice subjects are taught by practitioners who specialise in practice management – generic principles are reinforced by an industry practitioner who contextualises the applications of the principles.</td>
<td>• TAFE teachers’ age profile is maturing and they are struggling with keeping up with technological and practice changes taking place in industry.</td>
</tr>
<tr>
<td>• Staff are encouraged to collaborate with other portfolios within the Institute, as traditional boundaries get dismantled.</td>
<td>Innovation /Leadership</td>
</tr>
<tr>
<td>• Former graduates with industry experience are recruited to bring their experiences and familiarity with the institution and its academic processes into teaching.</td>
<td>• Staff enthusiasm and capacity to contribute is becoming increasingly dependent on their ability to become proficient users of new technology based tools in order to contribute innovative concepts and practices to enhance learning.</td>
</tr>
<tr>
<td>• Being a dual sector institution allows TAFE to access internationally/nationally recognised guest designers/academics invited to present lectures or run workshops – this enriches the programs.</td>
<td></td>
</tr>
<tr>
<td>• HE graduates with industry experience assist students who wish to undertake further study after TAFE.</td>
<td></td>
</tr>
<tr>
<td>• Younger industry recruits are mentoring the older staff members to maintain the currency of their technical/computer skills and capacity to teach.</td>
<td></td>
</tr>
<tr>
<td>• Design teachers in TAFE are very adaptive people that thrive on the constant change.</td>
<td></td>
</tr>
</tbody>
</table>

Innovation /Leadership

• The School has been restructured to a model based on multi-disciplinary clusters managed by coordinators to reinforce the synergies of relationships and project collaboration between different design practice areas.
• Industry, staff and students were consulted during the restructuring.
• Staffs are using the opportunity to interpret Training Packages to develop a more flexible project and studio-based learning environment that simulates the workplace.
• Teachers now have to increase the breadth of the discipline to consider its relationship and scope for collaboration with other design disciplines.
• School and cluster managers are required to undertake leadership training and to access external leadership coaches.
• Introduced an industry mentor program for final year students which benefits students’ learning experience and stimulates staff through contact with industry.
• Quickly adopting technology based methods, tools and innovation into the teaching of design practice.
• Workshops on ‘integrative learning’ approaches are provided to ensure that all the learning requirements are addressed by student projects.
In relation to the constituent variables ‘Staff qualifications’ and ‘Innovation leadership’ the data in Table 4.4.5.2 indicated that:

- Casual sessional teachers bring to the programs vast current industry experience and dynamism.
- Permanent full time staff members provided the Institutes’ corporate knowledge and values required to comply with current standards, policies and procedures as well as leadership/coordination and mentoring support to the other staff members.
- Permanent staff members were supported by leadership training.
- Specialist subjects, like practice management principles, were taught by specialist teachers and then reinforced and contextualised within design projects by recruited sessional industry practitioners.
- Younger TAFE and HE sector graduates with industry experience are often recruited because they have the capacity to mentor older staff members in technical and computer skills; to mentor aspiring TAFE students who intended to continue their studies in the HE sector, and because they are familiar with the institution and its teaching processes.
- Project collaboration across discipline and education lines is encouraged and was made more easily achievable as a result of being a dual sector institution.
- Programs are enriched by sharing access to visiting national and international guest lecturers who provided inspiration and provocation to students and staff members.
- Workplace mentoring by industry practitioners, with the aim of strengthening links with industry, has been established as a feature of the training provided to emerging student designers.
- In terms of innovation leadership design teachers in TAFE were said to be very adaptable to change.
- Following industry, staff and students consultations, innovative restructuring within the institution has occurred to establish multidisciplinary clusters, and to reinforce the synergies between different design practices for joint project collaboration.
- Teachers have interpreted Training Packages to develop more innovative, flexible project and studio-based learning environments that simulate industry workplace practice.
Staff development workshops on ‘integrative learning’ have been conducted to ensure that all the required learning outcomes are addressed by the projects given to students.

The multidisciplinary approach includes consideration of a particular design discipline’s relationship to other design disciplines, and of the scope for joint project work.

New computer and technology based tool and processes have been quickly integrated into innovative design teaching practice.

It was noted that there were some concerns expressed about the lack of TAFE education experience of some industry practitioners recruited to teach in design programs. The main issue was that they had high industry level expectations that affected their the ability to set more appropriate expectations, that more closely matched their students’ level of knowledge and experience in the design filed for which they were being trained. Another concern was regarding the aging profile of permanent teachers in TAFE, and their ability to maintain their capacity to teach required industry outcomes which reflect current industry practices. Their capacity to teach and enhance learning was increasingly dependent on their proficiency to use the latest technology tools and processes in their teaching practice.

The findings from RMIT, related to the recruitment of industry practitioners as sessional teachers, together with the currency of their design industry experience, are not confined to this example only, and are also echoed by data from other participating TAFE Institutes. This will be shown when discussing summaries of consolidated findings in Section 4.9 of this chapter.

4.4.6 Teaching Strategies

The model of the parameter ‘TEACHER STRATEGIES’ and its many constituent variables, is illustrated in Figure 4.4.6.1. As previously, this figure shows the parameter and its interdependent relationship with the constituent variables, and reflects the opinions, views, aspirations and suggestions of the participants.

As can be seen in Figure 4.4.6.1 overleaf, the parameter ‘TEACHER STRATEGIES’ has many variables, and it is important to note that, by implication, the choice of teaching strategies and their implementation has a bearing on the learning outcomes students achieve.
They also influence the attributes graduates bring to the workplace when they gain employment in the respective design field industry. Some of the teaching strategies, represented here by the variables, are well known while others are emerging as a result of new opportunities provided by the latest Information and Communication Technologies (ICT) being introduced and applied in TAFE education settings.

Figure 4.4.6.1: Model of the parameter TEACHER STRATEGIES and its constituent variables

The frequency distributions of all the coded references for the parameter ‘TEACHING STRATEGIES’ are shown according to the coding procedure discussed before in Table 4.4.6, 1overleaf.
Table 4.4.6.1: Matrix Coding Query showing the reference distributions for model parameter TEACHING STRATEGIES and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A: State = NSW</th>
<th>B: State = VIC</th>
<th>C: State = TAS</th>
<th>D: State = WA</th>
<th>E: State = SA</th>
<th>F: State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teaching Strategies</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Flexibility</td>
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<td>7</td>
<td>10</td>
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<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Integration</td>
<td>13</td>
<td>23</td>
<td>6</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>Mentoring</td>
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<td>30</td>
<td>11</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Multi-disciplinary</td>
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<td>8</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Online support</td>
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<td>0</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Orientation</td>
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<td>15</td>
<td>6</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
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<td>24</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
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<td>1</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>Student -centred</td>
<td>0</td>
<td>9</td>
<td>15</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>Teaching practice</td>
<td>35</td>
<td>89</td>
<td>78</td>
<td>58</td>
<td>45</td>
</tr>
<tr>
<td>13</td>
<td>Team Teaching</td>
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<td>17</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>14</td>
<td>Workplace simulation</td>
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<td>16</td>
<td>18</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>Work placement</td>
<td>1</td>
<td>21</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

The two constituent variables of the parameter ‘TEACHING STRATEGIES’ with the most coded references sourced from the interviews, were ‘Teaching practice’ and ‘Program delivery’. For discussion purposes, typical results obtained from recursive parsing of the data provided by participants from TAFE Tasmania, are presented here in Table 4.4.6.2, and reflect the views expressed by the participants.
Table 4.4.6.2 Recursive parsing results for the constituent variable ‘Teaching practice’ from participants interviewed at TAFE Tasmania in Hobart

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistically integrated studio-based teaching and learning is used in multimedia to introduce students to design processes, practices and thinking – students work individually and in teams solving real world problems.</td>
<td>Studio-based learning not effective for teaching application of digital computing skills because students may not have pre-requisite skills.</td>
</tr>
<tr>
<td>Student peers act as coaches for each other.</td>
<td>The teaching is heavily based on the multimedia practice experience of the individual teacher/coordinator.</td>
</tr>
<tr>
<td>Modified ‘studio-based teaching and learning’ uses a control project and ‘scaffolding’ designed to get students to complete required simple tasks and gradually increasing the complexity and difficulty of tasks and projects – teacher demonstrates and coaches the students.</td>
<td>Providing technical support to fully online students is difficult and takes more time to solve problems in the online environment than in face-to-face situations.</td>
</tr>
<tr>
<td>The projects are based on real problems and require creative responses.</td>
<td>Access to the internet can be a distraction for students as they may engage in irrelevant and unproductive online activities – checking emails, chat rooms, SMS’s or visiting inappropriate sites – need rules to manage</td>
</tr>
<tr>
<td>In the second year students are required to develop the brief for a project that runs over the semester/year – students are required to produce and report on a project plan.</td>
<td>The extensively used model of serviced subjects to deliver generic employability, business and project management skills separately was not working – teaching of these skills is now integrated into the design and technical practice training.</td>
</tr>
<tr>
<td>In the final stage of the program student complete a client-based project in collaboration with external clients or other TAFE students in another program like event management.</td>
<td>Some students have a dislike for the online learning and journal approach and they have to participate because it is compulsory – they provide less information and the students require more supporting ‘scaffolding’ to assist them to learn.</td>
</tr>
<tr>
<td>Students take full responsibility for client relationship, project management and delivery of outcomes.</td>
<td>Students may not be aware which competencies they are learning and achieving when bundles of competencies are integrated into projects – as stand alone items competencies don’t make much sense in terms of design teaching.</td>
</tr>
<tr>
<td>The focus is on improving design practice through visual literacy and developing underpinning generic employability and business related skills.</td>
<td>Underpinning employability skills may not be emphasised as much as they should in the design programs even though they are expected to be applied by the students and assessed.</td>
</tr>
<tr>
<td>Teaching practice is moving away from a modular approach to delivery – development of employability skills is carried over the whole year and includes lectures on customer service and practical application in the context of the projects in preparation for the ‘client project’.</td>
<td>Mature ages students returning to study after a longer break get very worried about the assessment process.</td>
</tr>
<tr>
<td>In the final project the role of the teachers is reduced to that of the ‘studio manager’.</td>
<td>The process of learning individual skills is still lock step and it doesn’t work because individual students learn at different rates.</td>
</tr>
<tr>
<td>In the second year students decide what new and additional technical skills they need to acquire to complete the projects and discuss their needs for training sessions in those aspects with the ‘studio manager’.</td>
<td>One limitation on using real time industry projects is that TAFE management and industry leaders try to avoid direct competition for projects with the industry firms– therefore TAFE is limited to using only non-profit community based or government projects or competitions.</td>
</tr>
<tr>
<td>Students are expected to develop and apply research/investigation/exploration skills in every project and to become independent learners.</td>
<td>Awareness of different cultures is built into the program to some extent but not being focussed on consciously – the emphasis is on the universal design values and aspects rather than the specific local and cultural aspects.</td>
</tr>
<tr>
<td>Students use their research findings to justify design decisions and product marketability.</td>
<td>Students may not be aware which competencies they are learning and achieving when bundles of competencies are integrated into projects – as stand alone items competencies don’t make much sense in terms of design teaching.</td>
</tr>
<tr>
<td>Students are introduced to design criteria during critique sessions as they discuss students’ project work.</td>
<td>Underpinning employability skills may not be emphasised as much as they should in the design programs even though they are expected to be applied by the students and assessed.</td>
</tr>
<tr>
<td>Discussion about what makes good design are moving online as it gives students more time to reflect about the work before forming an opinion and there is a record of the conversation thread available for review – students can also access other relevant background information online to inform their critique.</td>
<td>Mature ages students returning to study after a longer break get very worried about the assessment process.</td>
</tr>
</tbody>
</table>
Table 4.4.6.2 Recursive parsing results for the constituent variable ‘Teaching practice’ from participants interviewed at TAFE Tasmania in Hobart continued…

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Progress is being made to develop online learning resources – prepared classroom demonstrations are uploaded; students use digital technology resources, videoed client briefings; chat room use industry communication practices.</td>
<td></td>
</tr>
<tr>
<td>• Students submit their multimedia projects online using WebCT – this facilitates assessment.</td>
<td></td>
</tr>
<tr>
<td>• Use of mobile phone SMS services to seek assistance from teacher is common.</td>
<td></td>
</tr>
<tr>
<td>• The role of learning facilitator is becoming increasingly important to the practice of teaching and learning about design and creativity.</td>
<td></td>
</tr>
<tr>
<td>• Students are required to maintain a journal from day one or use an online journal BLOG as part of studio based learning to document and reflect on the processes students are experiencing – assists with developing own design methodology.</td>
<td></td>
</tr>
<tr>
<td>• Students who are reflective use the online journal more and are successful in the program.</td>
<td></td>
</tr>
<tr>
<td>• Each project is reviewed and reworked before it is used the next time.</td>
<td></td>
</tr>
<tr>
<td>• The learning and teaching is seen in terms of a ‘partnership’ between the facilitator and learners and this underpins the strength of the diploma programs.</td>
<td></td>
</tr>
<tr>
<td>• The focus on individual units of competency is diminished as bundles of units are integrated into project based activities – the teachers/assessors look for the evidence that indicates that they have been achieved</td>
<td></td>
</tr>
<tr>
<td>• To ensure compliance with the TP requirements student projects are designed to encompass a range of all the required units based on the knowledge of industry project types in demand and the required underpinning skills to complete them.</td>
<td></td>
</tr>
<tr>
<td>• To avoid duplication or omissions teachers work as a team to plan and coordinate the program delivery and share resources – sometimes some duplication is good for reinforcement of required learning.</td>
<td></td>
</tr>
<tr>
<td>• For student to become practical designers they need to focus on effective problem solving and brief analysis and development to identify the client’s needs – primary focus on functional solutions and then the aesthetics; Bauhaus approach to design learning of ‘form follows function’.</td>
<td></td>
</tr>
<tr>
<td>• Students are encouraged to broaden their interests and sources of ideas by formalised lectures about historical and cultural design contexts and by opportunities to share their experiences and collaborate in team projects – students also learn and apply employability skills during this process of collaboration.</td>
<td></td>
</tr>
<tr>
<td>• The timing of deadlines is an integral part of projects and students are expected to meet the set deadlines in order to maintain a steady workload and flow.</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.4.6.2 Recursive parsing results for the constituent variable ‘Teaching practice’ from participants interviewed at TAFE Tasmania in Hobart continued.

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
</table>
| • There is ongoing continuous assessment by the individual teacher during the teaching phase and student learn to self assess through group critiques and discussions of project work.  
• General orientation sessions reinforce housekeeping matters, set out expectations and responsibilities and explain how assessment is to be conducted.  
• Each project is preceded by a briefing from the teacher to explain the project learning outcomes in terms of competencies and the relevant criteria to be used.  
• Annual moderation is used to sample and compare examples of student assessment projects and ensure that the TAFE benchmarks are reasonable across the state.  
• Moving from a teacher-based to a more student-based delivery model to meet individual student’s needs and interests – want to move away from the notion of a class to a more open-ended approach where individuals within reason will come in and start from their personal baseline and progress through project learning and peer group experience sharing/ collaboration to reach the required outcomes.  
• In the final stage of the program there is scope for negotiated learning and projects that will meet required summative outcomes that demonstrate competence.  
• Trying to make students aware of the new print media production processes and opportunities for international collaboration on projects through guest lecturer appearance to talk about those emerging collaboration models.  
• Having international students in the programs adds richness and helps students to develop a greater awareness of different cultural aesthetic values and preferences.  
• Also developing a global approach to some aspects of design where products are marketed globally.  
• Students are expected to communicate their reasons for having done certain things during the design process. |
The main findings from Table 4.4.6.2 are summarised here:

- Integrated studio-based teaching and learning is used in multimedia programs. The focus on individual units of competency is diminished as bundles of units are integrated into project-based activities.
- The focus also is on improving design practice through visual literacy and developing underpinning generic employability and business related skills.
- The projects are based on real problems and require creative responses.
- There increasing use of innovative applications of computer-based digital technologies and on-line supported teaching and learning activities, for example video; SMS; Blogs; WebCT; E-mail; chat-room.
- Moving from a teacher-based to a more student-based delivery model to meet individual student’s needs and interests.
- In the second year students are required to develop the brief for a project that runs over the semester/year.
- In the final stage of the program student complete a client-based project in collaboration with external clients or other TAFE students.
- Student peers act as coaches for each other.
- Students are expected to take full responsibility for client relationship, project management and delivery of outcomes, and the role of the teacher is reduced to that of the ‘studio manager’.
- Students are expected to become independent learners, develop and apply research/investigation/exploration skills in every project to justify design decisions and product marketability.
- Students are introduced to design criteria during critique sessions and online discussions about what makes good design – the online environment gives students more time to reflect about the work before forming an opinion.
- The role of learning facilitator is becoming increasingly important to the practice of teaching and learning about design and creativity.
- To avoid duplication or omissions teachers work as a team to plan and coordinate the program delivery and share resources.
• Annual moderation is used to sample and compare examples of student assessment projects and ensure that the TAFE benchmarks are reasonable across the state.
• Developing a global approach to some aspects of design where products are marketed globally and trying to make students aware of the new print media production processes and opportunities for international collaboration on projects.

In addition there were some findings that were critical and highlighted some of the shortcomings of some of the teaching strategies that were being implemented by participants from TAFE Tasmania in Hobart. These findings are summarised here:
• Studio-based learning not effective for teaching application of digital computing skills because students may not have pre-requisite skills.
• The teaching is heavily based on the multimedia practice experience of the individual teacher/coordinator.
• Providing technical support to fully online students is difficult and takes more time to solve problems in the online environment than in face-to-face situations.
• Access to the internet can be a distraction for students as they may engage in irrelevant and unproductive online activities.
• The extensively used model of serviced subjects to deliver generic employability, business and project management skills separately was not working.
• Underpinning core generic employability skills may not be emphasised as much as they should in the design programs even though they are expected to be applied by the students and assessed.
• Mature ages students returning to study after a longer break get very worried about the assessment process.
• The process of learning individual skills is still lock step and it doesn’t work because individual students learn at different rates.
• One limitation on using real time industry projects is that TAFE management and industry leaders want to avoid direct competition for projects with the industry firms.
• Awareness of different cultures is built into the program to some extent but not being focussed on consciously.
4.4.7 Ways of Learning

The model of the parameter ‘WAYS OF LEARNING’ and its constituent variables is shown in Figure 4.4.7.1. This figure shows the parameter and its interdependent relationship with the constituent variables. Detailed results are given in Appendix 3.

Figure 4.4.7.1: Model of the parameter WAYS OF LEARNING and its constituent variables

Whereas the focus of the discussion of the previous parameter was concerned with the teaching strategies, in this case the focus is more on investigating the teachers’ perceptions about how students learn and what preferences they have for learning. Included in the model are the variables: ‘Project-based learning’; ‘Online learning’; ‘Work experience’; ‘Group learning’; ‘Student independent learning’ and ‘Reflection on’.

As before, the frequency distributions of all the coded references for the model parameter ‘WAYS OF LEARNING’ is shown in the following table. The shading density indicates where most of the coded references.
Table 4.4.7.1 Matrix Coding Query showing the reference distributions for model parameter WAYS OF LEARNING and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
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<td>1 : Ways of Learning</td>
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<td>5</td>
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<td>3 : Online</td>
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<td>3</td>
</tr>
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<td>31</td>
</tr>
<tr>
<td>5 : Reflection on</td>
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<td>23</td>
<td>12</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>6 : Student independent study</td>
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<td>9</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>7 : Work experience</td>
<td>9</td>
<td>16</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

The two constituent variables of the parameter ‘WAYS OF LEARNING’ with the most coded references sourced from the interviews were ‘Project based learning’ and ‘Reflection on’ occurred in Queensland, Victoria and Tasmania. For the purposes of discussion, two examples of results of the recursive parsing process applied to the interviews from Southbank Institute of TAFE are used here. Presented in Table 4.4.7.2, overleaf, are the views expressed by participants working in the context of graphic design. The second example that follows on, represents the views of participants working in the context of stage set design and production, and is shown in Table 4.4.7.3.
Table 4.4.7.2 Results of recursive parsing for the variable ‘Project based learning’ from Southbank Institute of TAFE Morningside Campus. (Context: graphic design)

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Graphic design is mainly project-based learning using a blended approach to theory and practice where several modules are occasionally integrated.</td>
<td>• It is suggested that because training is competency based it has to be a 'top-down' approach to teaching and learning.</td>
</tr>
<tr>
<td>• There are stand alone modules/subjects like computer based design technology.</td>
<td>• There is no scope for students to negotiate projects under the current approach – the direction and what is taught is driven by the curriculum</td>
</tr>
<tr>
<td>• First year still learn some underpinning manual arts skills but second year is completely computer based design.</td>
<td>• The proscribed assignments and project briefs have very specific requirements and are restrictive – only in exceptional circumstances, when a student is really burning to do something outside the brief, is there some leeway as long as they can demonstrate that the required outcomes are addressed.</td>
</tr>
<tr>
<td>• Trying to apply a holistic pedagogy that establishes rapport with students and responds to their learning styles/needs based on humanist ideals and to allow teachers to manage their roles and responsibilities to students – ‘cognitive apprenticeship’ where teacher identifies the gap between the students knowledge and experience of the subject areas and his/hers and then tries to slowly ‘fill the gap’ by showing examples and ‘building scaffolding’ with the students.</td>
<td>• The staff find it very difficult to simulate the graphic design practice environment in the second year unlike in other places, however moving towards that model.</td>
</tr>
<tr>
<td>• Demonstrations play an important part of the teacher centred ‘cognitive apprenticeship’ but at the end students have to demonstrate what they can do.</td>
<td>• The teachers don’t see themselves as facilitators or mentors – they see themselves as technique teachers.</td>
</tr>
<tr>
<td>• Students are expected to present and justify their projects in ‘proper crits’.</td>
<td>• The multimedia, film, photography, graphics and ceramics programs totally rely on online technology resources, but it is very expensive to produce and maintain and it is difficult to get a return on investment – not viable at present.</td>
</tr>
<tr>
<td>• Students are given the responsibility to voluntarily organised their end of year exhibitions.</td>
<td>• The emergence and recognition of the creative industries as significant contributors to economic development makes the creative industries stronger but the challenge is to do more with less resourcing and reduced training hours while maintaining the quality of the training outcomes.</td>
</tr>
</tbody>
</table>
| • There is not much defined theoretical content in the current creative industry TP’s and what is included forms the core – so it leaves it wide open to do what you like. \n
The findings from Table 4.4.7.2 are:

- The delivery of graphic design programs is mainly based on project-based learning methods that allow the integration of some of the units in a blended manner that develops the required theoretical knowledge and practical skills.
- Computer aided design units are usually delivered separately.
- Traditional manual arts skills are introduced and developed only in the first year of the program.
- The teaching and learning practice strives to implement holistic pedagogy practices and respond to students’ learning needs by establishing ‘cognitive apprenticeships’,
whereby the teachers work with the individual students to fill identified gaps in the subject knowledge and experience by jointly ‘building scaffolding’.

- Demonstration plays an important role in the ‘cognitive apprenticeships’ approach.
- Students are required to present and justify their design solutions during critique sessions.
- Students are given the responsibility for organising the end of year exhibition as part of their learning experience.

Some of their significant concerns can be summarised as:

- Competency based training is regarded as a top-down and restrictive approach that is very prescriptive and does not leave much scope for negotiating more flexible approaches to design education.
- It is difficult to effectively simulate the graphic design studio practices environment and practices within the TAFE system settings.
- It is difficult to implement the holistic pedagogy when teachers do not regard themselves as facilitators of learning.
- It is difficult to enhance or maintain the quality of learning outcomes when the duration of programs and other supporting resources are being reduced.
- Training Packages in the creative industry sector do not address much theoretical content, and therefore what is presented to students is highly dependent on the teachers’ input.

The result of the recursive parsing of views of the participant from the stage set design and production program are shown overleaf in Table 4.4.7.3.
Table 4.7.3: Results of recursive parsing for the variable ‘Project based learning’ from Southbank Institute of TAFE Morningside Campus. (Context: Stage set design and production)

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The introduction of Training Packages has changed the delivery of programs from ‘chalk and talk’ to a more specific TAFE and easier workshop based approach that involves student more actively in developing learning skills – student-centred but less nurturing – different from the other sectors; smaller class sizes and greater contact hours.</td>
<td>• The nature of the integrated project based learning and industry practice results in very complex delivery pattern that requires good planning and coordination of teaching and production activities that can be undone by unexpected absences of key staff – risky strategy.</td>
</tr>
<tr>
<td>• The revised Training package has flattened the study pathway form one where students had to complete prerequisite Certificates II, III and IV to do the diploma – more flexible matrix of outcomes now.</td>
<td>• There are potentially too many problems if one tries to make the simulation too much like a company when it isn’t one.</td>
</tr>
<tr>
<td>• In the ‘Stage set design and production’ program, delivery is run like a ‘theatrical company’ with appointed designer, constructor, scenic painter and stage director to simulate the workplace within what is still a learning environment.</td>
<td>• The Entertainment Training Package introduces the design component at the Advanced Diploma level but the need is to have design as a focus throughout the current qualification levels.</td>
</tr>
<tr>
<td>• Students participate in regular production team meetings to review what is happening with the project and share ideas – they take different roles and discuss the project from the point of view of that role.</td>
<td>• It is difficult to develop the desirable depth and breadth of knowledge within the allocated hours – graduates are expected to undertake much on-the-job learning after graduation.</td>
</tr>
<tr>
<td>• The new project-based workplace simulation approach requires a different way of thinking about how knowledge and skills are to be presented to students and developed – integrated delivery and assessment.</td>
<td>• The program tries to get students to look at the production processes but it is hard for them to reflect on the whole process because it is multi-facetted and complex and students don’t get to experience all of it on the one production project - student should be reflecting about the outcomes of parts of the cycle to more fully understand the issues why and how problems/ changes occurred between the development of the design concept and its implementation in the production.</td>
</tr>
<tr>
<td>• ‘Staff Conversations’ and moderation practices ensure that everyone is heading in the same direction.</td>
<td>• Some students have difficulties coping with introduced changes during the production phase and responding flexibly to the real world changing circumstances surrounding the production process – they develop the impression that there is a lack of leadership/ disunity among staff, clarify in the communication or the process is badly organised.</td>
</tr>
<tr>
<td>• Through a highly integrated project-based learning approach students are taken through all the stage production processes from script analysis, design concept development, stage set modelling, samples and prototypes and final stage production in the following semester – up to three productions each year.</td>
<td>• Employment in stage productions is usually on a casual contract basis – students need to be self-employed or work for a stage production servicing company and mange their employment careers – the program does not address this aspect when preparing graduates for employment because there is not enough time – would need another year in the diploma. The old program did address this but the students didn’t see the relevance and didn’t like it.</td>
</tr>
<tr>
<td>• New students coming into the program work on producing the stage set designed by the previous group and then they develop the concept for the next production for the incoming new group.</td>
<td>• Model making is an important element of the design phase to illustrate the final design concept – industry practice is changing and also using multimedia presentation techniques like ‘story boards’, ‘Powerpoint’ illustrations and oral presentations – lack of consensus in the industry about the importance of models as part of the design presentation.</td>
</tr>
<tr>
<td>• The teaching of design thinking and conceptual development is taught by recently appointed staff member with extensive live show production design experience.</td>
<td>• There is a big turn over of casual staff each year and it is difficult to retain the small number of full time staff as they move on when industry projects arise.</td>
</tr>
<tr>
<td>• Students work on a 3-4 week project collaborating with an amateur theatre group to only produce and install stage sets for a show.</td>
<td>• Students rely on the staff to tell them when the required standards are met – even though the students are given the relevant criteria they not developing capacity to self assess.</td>
</tr>
<tr>
<td>• Students work very hard and get a lot of satisfaction from their contribution to the overall production outcomes and effect because it is the cumulative results of participating in different tasks of the production processes.</td>
<td></td>
</tr>
</tbody>
</table>
• Proposing to introduce a visual diary/logbook so each student can document, evaluate and reflect on the decision making, completed tasks and roles played during the design and production phases.
• The staff identified a need for a reflective staff/students de-brief at the end of the semester to confirm lessons learnt and how to improve.
• Many university graduates come to TAFE for the practical skills so we must be doing something right.
• Social skills development plays an important role because as artists/designers graduates will become isolated and independent practitioners and they need to be able to relate to their clients and patrons.
• There is a guest speaker program every Wednesday that introduces students to all sorts of fascinating concepts and they all are required to attend – more appealing to the mature students than the younger school leavers who find it boring and challenging to understand the finer point of the presented concepts.
• From a management perspective there is much checking of delivery and assessment plans; study guidelines and materials provided to students so trying to adopt standard formats and to ensure compliance with the curriculum and TP requirements while allowing some scope for flexibility and dynamism to respond to unexpected learning opportunities that arise from time to time and enrich the learning.
• Teaching practice is moving away from a teacher-based approach to a more student-based and practical workshop approach.

• Some teachers don’t like the new student-based approach and new methods of teaching that emphasise the practical workshop-based delivery.
• Some specialist teachers find it difficult to integrate what they teach within the overall program.
• The program identified the need to provide more training in visual illustration and technical drafting skills to communicate more effectively the design concepts.

The results from Table 4.4.7.3 are summarised here:

• The introduction of the Entertainment and other related Training Packages led to a more practical student centred approach to learning with more flexible study pathways.
• The delivery of the stage set design and production program uses a highly integrated project-based approach that simulates a ‘theatre company’ setting and processes within an educational environment, and where students play the various associated roles. They also collaborate with local small theatre companies to produce shows.
• This innovative approach required rethinking how the required knowledge and skills were to be presented to students and how their development was to be assessed.
• This approach is more student-centred, and allows students to experience all the facets of stage set design and production while producing up to three stage shows each year.
• Teachers’ conversations and moderation meetings ensure the delivery is well coordinated to meet production schedules.

• At the beginning new student work on the production of stage set designs developed by students in the senior year.

• Staff members often have strong reputations in the live stage production industry within the context of theatre, film, and TV.

• Students work very hard and get a lot of satisfaction from their contribution to the overall production outcomes and effect because it is the cumulative results of participating in different tasks of the production processes.

• A guest speaker program runs every week and students are required to attend. It aims to introduce fascinating theatrical concepts to students. This appears to be more appealing to the mature students than the younger school leavers.

• Social skills development plays an important role because as artists/designers graduates will become independent practitioners and they need to be able to relate to their clients and patrons.

Some of the important concerns that were identified include:

• The Entertainment Training Package introduces the design component at the Advanced Diploma level but the need is to have design as a focus throughout the current qualification levels.

• The nature of the integrated project based learning and industry practice results in very complex delivery pattern.

• The program tries to get students to experience the production processes, however student find it difficult to reflect on the whole process because it is multi-faceted, complex, and students don’t get to experience all of it during one production project.

• Some students have difficulties coping with introduced changes during the production phase, and with responding flexibly to the ‘real world’ changing circumstances.

• There is a big turn over of casual staff each year, and it is difficult to retain the small number of full time staff as they move on when industry projects arise.

• Although model making is still an important element of the design phase to illustrate the final design concept – industry practice is changing to also using multimedia presentation techniques like ‘story boards’, ‘Powerpoint’ illustrations and oral
presentations – however, there seems to be a lack of consensus within the industry about the relative importance of models as part of the design presentations.

- Some teachers don’t like the new student-based approach and new methods of teaching that emphasise the practical workshop-based delivery.
- Some specialist teachers find it difficult to integrate what they teach within the overall program.
- The staff identified a need for a reflective staff/students de-brief at the end of the semester to confirm lessons learnt and how to improve.
- The program identified the need to provide more training in visual illustration and technical drafting skills.
- It is difficult to develop the desirable depth and breadth of knowledge within the allocated hours.

These results seem to indicate that the implementation of Training Package and competency based training programs into these areas of TAFE design education has commenced, however it has had significant implications for the teaching as well as learning practices that students and teachers still need to overcome before effective student-centred learning takes hold in these areas.

Detailed results are provided in Appendix 3.

4.4.8 Assessment

The model of the parameter ‘ASSESSMENT’ and its constituent variables, ‘Competency based’, ‘Graded assessment’, ‘Self and peer assessment’, ‘Feedback to students’, ‘Recognition of prior learning’ and ‘Outcomes reporting’ is illustrated on the following page, in Figure 4.4.8.1.
As in all the previous cases, the frequency distributions of all the coded references for the parameter ‘**ASSESSMENT**’ are shown in Table 4.4.8.1. The shading density indicates where most of the coded references are grouped.

**Table 4.4.8.1: Matrix Coding Query showing the reference distributions for model parameter ASSESSMENT and its constituent variables**

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 : Assessment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 : Competency based</td>
<td>36</td>
<td>37</td>
<td>27</td>
<td>25</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>3 : Feedback to students</td>
<td>11</td>
<td>10</td>
<td>12</td>
<td>21</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>4 : Graded assessment</td>
<td>11</td>
<td>12</td>
<td>17</td>
<td>9</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>5 : Outcome reporting</td>
<td>1</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>6 : Recognition prior learning</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>7 : Self and peer assessment</td>
<td>4</td>
<td>13</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>26</td>
</tr>
</tbody>
</table>

The two constituent variables of the parameter ‘**ASSESSMENT**’ with the most coded references sourced from the interviews were ‘**Competency based**’ and ‘**Feedback to students**’.

For the purposes of discussion one typical example of the results of the recursive parsing
process, is presented here in Table 4.4.8.2 and represents the views expressed by participants from the Enmore Design Centre. Note that the highlighting of the text here is not necessarily significant and is the result of importing text which has been coded using NVivo. For reasons that cannot be explained, the highlight was not able to be removed. However, important passages have been underlined.
Table 4.4.8.2 Recursive parsing results for the constituent variable ‘Competency based’ from participants interviewed at Sydney Institute of TAFE Enmore Design Centre

<table>
<thead>
<tr>
<th><strong>POSITIVE</strong></th>
<th><strong>NEGATIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• But that’s where I observe your students using key competencies really well, in that you force them to do that and you’re setting it up so they can’t avoid the doing of it. They have to interact. They have to communicate. And if they’re not communicating well enough there’s somebody else pushing them forward to extract their ideas.</td>
<td>• Underpinning generic skills are all packaged in. The reason why they tend to get separated is that people try to come up with western scientific models and methods for measuring say attitudes or teamwork.</td>
</tr>
<tr>
<td>• Students have to explicitly know that they are developing implied underpinning generic skills. There no point in doing it unless somewhere along the line there’s a critique or assessment;</td>
<td>• But as soon as you start measuring it you start distorting it. And I know because I’ve done that, I’ve distorted things really badly in my department sometimes, by over-measuring things. And the students’ behaviour will change. The staff’s behavioural will change.</td>
</tr>
<tr>
<td>• Students have to present their design solution in front of their peers and the teacher and explain how it addresses the key requirements. In that environment they get practiced at it because that will happen many hundreds of times during their time here and they will judge themselves against their peers.</td>
<td>• That’s why these key areas, Meyer, they’ve never been addressed because it’s abstract and it’s not measurable.</td>
</tr>
<tr>
<td>• Assessment validation is used to ensure that the delivery of training follows the curriculum requirements. It’s also explained in the information that the students receive and the staff access.</td>
<td>• There is a problem from a language point of view. You start with university which is a higher level of professional practice and then have to use consistently dumber and dumber language to describe performance levels down to Certificate IV and beyond. This created the perception that competence at Certificate IV level is a low level skill.</td>
</tr>
<tr>
<td>• Students justify their conceptual ideas for projects through research, contextualising project documentation and through critical presentation. We don’t ask them to necessarily link it to current contemporary theories like at university, although we do give them design history. (others voice agreement)</td>
<td>• There’s no assistance about the place and we end up having to do it all ourselves. We now have 15 subjects a year, at least three assessment events in each subject so you’ve got 45 sets of events. …The students are being asked to hand in 45 potential fails a year… But the reality is that the effort that goes into that, the mechanics of it are never acknowledged as input into the normal workday:</td>
</tr>
<tr>
<td>• There is face-to-face critical evaluation going on which is absolutely pivotal to the process of design. And that’s where I think the 15:1 (student staff ratio) is significant because it’s very difficult to do a quality critiquing with 30, 40 or 50 students.</td>
<td>• We do work placements with some firms which work very well but sometimes it does get out of hand. It has to be really monitored. And with the pressures of work outside the students are expected to work overtime and they have to make a choice between here and work.</td>
</tr>
<tr>
<td>• Industry experience is beneficial only if students are achieving outcomes out there that match the required outcomes. But sometimes in industry compromises have with design standards.</td>
<td>• To ensure that the work based project work outcomes meet the required learning outcomes we map them all to make sure that they are on track. That takes up a lot of time as in project-based learning, depending on the subject whether the projects are designed specifically to address only certain learning outcomes or all of them at the same time.</td>
</tr>
<tr>
<td>• There have been part time students who achieved a lot of the required outcomes in the workplace and so they were accelerated. And I think overall TAFE probably does that more so than the university sector.</td>
<td>• Luckily the PASS criteria are relatively open in the way they have been written and so there is scope for flexibility in the way you interpret them.</td>
</tr>
<tr>
<td>• Units can be clustered so that you get a module/subject that holistically clusters 3 or more together and make it more workable. It’s more useful to us because it is actually more prescriptive and from a transcript point of view it’s really important for the transcript to say what they’ve done.</td>
<td>• The assessment requirements in Units of Competency that are in the Training Packages are very specific. You have to develop and use appropriate and relevant assessment tasks that reflect the relative importance of the knowledge and skills in the overall competency. Everybody balances that in their own department in their own way.</td>
</tr>
<tr>
<td>• Students and teachers often feel bad about ungraded competency assessment because some teachers undermine what it’s about and don’t understand how it can actually be a positive environment to learn in. But students don’t always see that.</td>
<td>• Students and teachers often feel bad about ungraded competency assessment because some teachers undermine what it’s about and don’t understand how it can actually be a positive environment to learn in. But students don’t always see that.</td>
</tr>
<tr>
<td>• If the project criteria are very tight and explicit so that we can measure every aspect of it we’ll crush the creativity and that’s what we try to avoid.</td>
<td>• If the project criteria are very tight and explicit so that we can measure every aspect of it we’ll crush the creativity and that’s what we try to avoid.</td>
</tr>
</tbody>
</table>
The findings from Table 4.4.8.2 can be summarised and indicate that:

- There is a focus on developing and assessing students’ use of key competencies, particularly their communication and presentation skills and there is a need to make these assessment requirements explicit.
- Assessment validation is used to ensure that the program delivery meets curriculum requirements.
- It is an assessment requirement that student present their design research to rationalise their design decision making and solution outcomes.
- Small class sizes in TAFE design education facilitate quality contact with teachers and other students, and to provide quality critique feedback to students about their work.
- Part time employment in the industry or work experience placements can contribute to accelerated completion of the program if the workplace tasks contribute towards the achievement of required learning outcomes.
- Clustering of some units allows a more holistic approach to teaching and assessment to be used however, the results transcripts should list the completed units separately.

The positive statements above are contrasted by the following concerns about assessment:

- Although the generic competencies, such as the Employability Skills, are integrated into the teaching, they tend to get segregated, or not fully addressed for assessment purposes, due to their abstract nature and difficulties associated with developing effective and valid assessment methods.
- There are concerns about the way the assessment methods used can potentially influence and distort students’ and teachers’ behaviour.
- Since the introduction of Training Packages the workload associated with the mapping of learning outcomes and related assessment tasks has increased very significantly due to the relatively high number of units in a semester program stage, and their constituent elements and criteria. (Previously there were fewer subjects and a more holistic approach to teaching and assessment.)
- The assessment criteria are open to teacher dependent interpretations of the assessment requirements and criteria, resulting in significant variations in the way they are applied during the assessment process, and inconsistent outcomes of the assessment process.
There is a perception that the assessment criteria are very explicit and rational, however their application to design work may lead students to produce mundane design solutions devoid of creative characteristics.

For detailed parsing results for the parameter ‘ASSESSMENT’ see Appendix 3.

4.4.9 Graduate Attributes

The model of the parameter ‘GRADUATE ATTRIBUTES’ and its constituent variables ‘Design skills’ and ‘Employability’ is illustrated below in Figure 4.4.9.1. Note, here, that the parameter ‘TEACHING STRATEGIES’, by implication, has an influence on the attributes of graduates after they complete their TAFE design education. The opinions, views, aspirations and suggestions as data provided by the interview participants were coded using identified concepts related to the variables shown in Figure 4.4.9.1 below.

Figure 4.4.9.1: Model of the parameter GRADUATE ATTRIBUTES and its constituent variables
The frequency distributions of all the coded references for the parameter ‘GRADUATE ATTRIBUTES’ are shown in Table 4.4.9.1. The shading density indicates where most of the coded references are grouped.

Table 4.4.9.1: Matrix Coding Query showing the reference distributions for model parameter GRADUATE ATTRIBUTES and its constituent variables

<table>
<thead>
<tr>
<th></th>
<th>A : State = NSW</th>
<th>B : State = VIC</th>
<th>C : State = TAS</th>
<th>D : State = WA</th>
<th>E : State = SA</th>
<th>F : State = QLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graduate Attributes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Design skills</td>
<td>21</td>
<td>15</td>
<td>4</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Employability</td>
<td>24</td>
<td>33</td>
<td>14</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

From Table 4.4.9.1, it can be seen the highest number of frequency distribution occurred in relation to the constituent variable ‘Employability’ in Queensland (QLD), and the variable ‘Design skills’ in New South Wales (NSW) and Western Australia (WA). Presented here a typical example of recursive parsing of interview data from QLD in relation to the ‘Employability’ variable, and two examples from WA in relation to the ‘Design skills’ variable. The first example, shown in Table 4.4.9.2, is from Southbank Institute of TAFE, Morningside Campus. The data is situated in the context of graphic design and stage set design and production training.

Table 4.4.9.2: Recursive parsing results for the constituent variable ‘Employability’ from participants interviewed at Southbank institute of TAFE, Morningside Campus

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The majority of graduates end up in jobs involving small teams.</td>
<td>- The perception is that the underpinning Employability Skills are not being developed very much in the graphic design programs although students are meant to be assessed on performance, attitude, aptitude.</td>
</tr>
<tr>
<td>- Students are expected to present and justify their design decision making.</td>
<td>- The design component of stage set design and production does not appear until the Advanced Diploma level in version 2 of the Entertainment TP.</td>
</tr>
<tr>
<td>- Students are given the tasks to organise the end of year exhibition.</td>
<td>- It takes up to five years for graduates to get permanent or fulltime employment in set construction – in the meantime they volunteer to build sets for amateur stage productions.</td>
</tr>
<tr>
<td>- Second year student are often successful in winning design competitions and national awards for projects that integrate manual and computer based artwork.</td>
<td>- It is suggested that the underpinning Employability Skills don’t relate to people in creative industries because by themselves they don’t lead to vocational outcomes and employment – therefore they are less important than the discipline vocational skills.</td>
</tr>
<tr>
<td>- The focus is on developing technical drawing, set construction and manufacturing skills in the programs</td>
<td></td>
</tr>
<tr>
<td>- The aim of the program is to give set construction students learning experiences of the whole process from design concept to manufacture and installation before they enter employment as a ‘stage hand’.</td>
<td></td>
</tr>
<tr>
<td>- Graduates have experience in problem solving, planning, organising, effective communication and teamwork.</td>
<td></td>
</tr>
<tr>
<td>- By making the Employability Skills more prominent in the TP’s they might assist graduates to become more creative thinkers who can develop ideas, produce the required end product, promote it and sell it and become more effective in the industry.</td>
<td></td>
</tr>
</tbody>
</table>

From Table 4.4.9.2 the main constructive points that emerge are that:
• Most graphic design graduates end up employed in small team design offices.
• Graduates are expected to have well developed design project decision making and presentation skills.
• Second year graduating students often have well developed manual and computer based artwork skills that allows them to successfully participate in design competitions.
• Students from the set design and production program graduate with technical drawing, set construction and manufacturing skills, and are experienced in the whole process from set design concept to manufacture and installation.
• The Training Packages are making the core Employability Skills more prominent and they assist graduates to become more creative thinkers who can develop ideas, produce the required end product, promote it and sell it and become more employable in the industry.

Table 4.4.9.2 also includes some concerns in relation to the ‘Employability’ variable:
• The perception is that the underpinning Employability Skills are not being developed very much in the graphic design and other creative industries because by themselves, they don’t lead to vocational outcomes and employment—therefore they are less important than the discipline vocational skills.
• The design component of stage set design and production is not addressed until students reach the Advanced Diploma level in the revised version of the Entertainment Training Package, (version 2).
• It takes up to five years for graduates to find permanent or fulltime employment in the set design and production industry.

The second example comes from the Leederville Campus of WA TAFE, and the data related to the constituent variable ‘Design skills’ are situated within the context of building design and drafting education.
Table 4.4.9.3: Recursive parsing results for the constituent variable ‘Design skills’ from participants interviewed at WA TAFE, Leederville Campus

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students graduate with a sense of building design developed by experience of architectural design influences – but not architects.</td>
<td>• There is sensitivity about the extent to which building design students are trained as designers due to pressures from the architecture profession.</td>
</tr>
<tr>
<td>• Students are capable of developing the building design concept and suitable details.</td>
<td>• There is a perception that students gain these design values from the teachers as an added bonus that is not necessarily part of the curriculum.</td>
</tr>
<tr>
<td>• Students develop some capacity to contextualise projects within contemporary and historical social contexts.</td>
<td>• The development of design sensitivity and ability to detail appropriately to reinforce the design is informal, unstructured and not formally assessed – it is developed over time with maturity as it gains importance during the program.</td>
</tr>
<tr>
<td>• Students get grounding in standard details before attempting to customise details to suit the particular design concept and style.</td>
<td>• It is difficult to measure and describe the learning that takes place with individuals as it depends on the study mode, their maturity and experience and they take a different amount of time to achieve the capacity to design.</td>
</tr>
<tr>
<td>• Graduates are expected to and develop into building designers after several years of drafting and design assistant experience.</td>
<td>• Employment options for Certificate IV graduates are limited to drafting.</td>
</tr>
<tr>
<td>• The majority of diploma graduates find employment in the industry in a range of capacities up to chief designer after some years of industry experience.</td>
<td></td>
</tr>
</tbody>
</table>

From Table 4.4.9.3 it can be seen that the results of the recursive parsing process yielded the following affirmative points:

- Building design students graduate with a sensibility that takes into consideration the architectural theory and conceptual characteristics of the building design solution, and enables students to develop appropriate building construction details.
- Graduates can apply standard and customised details that suit the relevant historical or contemporary building design context.
- Graduates are expected to further develop their building design skills during their employment as assistant building designers.
- Most diploma graduates find employment and can aspire to become chief designers after a number of years of industry experience.

Table 4.4.9.3 also shows that there are a number of concerns, including that:

- The extent to which TAFE students can be educated as building designers is limited by sensitivity to professional demarcation issues raised by the architectural profession.
- There is a perception that students informally gain design skills from their teachers and that this is not a formally acknowledged or assessed as a requirement of the curriculum in spite of its growing importance to develop and maintain the integrity of the design.
- Teachers find it difficult to describe and assess the design learning that takes place.
Certificate IV graduates’ employment is limited to a drafting role.

The issues listed above need to be considered in the light of employment destinations of graduates. The majority of TAFE graduates are usually employed by developers and builders as assistant designers and designers of buildings responsible for some of the design input into projects. Some graduates are also employed by architectural practices where they are collaborating within architectural project teams as team members responsible for developing and developing construction details and other relevant project documentation. They rely on their design skilling and sensitivity when together with the architect or chief designer they are trying to ensure that the integrity of the design concept and visual qualities are not compromised by inappropriate details, materials and finishes.

The last examples comes from WA TAFE, Perth Central Campus, and the participants’ views about the parameter ‘GRADUATE ATTRIBUTES’ and its constituent variable ‘Design skills’ were expressed in the context of teaching underpinning design foundation, as well as film, TV and multimedia production studies.

Table 4.4.9.4: Recursive parsing results for the constituent variable ‘Design skills’ from participants interviewed at WA TAFE, Perth Central City Campus

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The introduction of a Certificate III level introductory design foundation program is trying to provide the theoretical framework and basis for further study and to equip students with the necessary study skills to explore the influences that shape design solutions.</td>
<td>• There are concerns that skills that are associated with creative thinking and design capacity are not addressed satisfactorily by TP based training in the film and multimedia areas because it is difficult to describe and capture contextual content and theories as units of competence</td>
</tr>
<tr>
<td>• Students completing the design foundation and pre-press Certificate III programs are employable as trainees in graphic art production and continue training at Certificate IV and higher levels</td>
<td></td>
</tr>
<tr>
<td>• Students completing the Advanced Diploma of Screen (Film and TV) are working on projects independently and are responsible for negotiating access to filming locations</td>
<td></td>
</tr>
<tr>
<td>• Graduates are creative and find employment in the film industry.</td>
<td></td>
</tr>
</tbody>
</table>

From table 4.4.9.4 the main constructive results are that:

• The introduction of design foundation studies at the Certificate III level aims to improve students’ preparation for exploring the influences that shape design solutions.
• Graduates from the Certificate III level foundation programs may find employment as trainees in graphic art production or continue further studies at higher levels.

• Advanced diploma graduates from the film, TV and multimedia production demonstrate creativity and the capacity to work on production projects independently and find employment within production teams.

However, the main concern that was noted is that skills and knowledge development associated with creative thinking and design are not addressed satisfactorily by the Training Package based training related to the film and multimedia areas.

This concludes the presentation and discussion of the results of the recursive parsing processes which were applied to the interview data from the various participating TAFE Institutes and their staff members. The next section of this chapter presents and discusses the results of empirical data analysis using the Leximancer qualitative data analysis software program.
4.5 LEXIMANCER QUALITATIVE DATA ANALYSIS RESULTS

Leximancer\textsuperscript{176}, [80] is a computer based qualitative data analysis tool that can be used to analyse interview transcript texts and to display visually the key information concepts. These concepts are presented by the software program as conceptual maps that provide an overview of the structure of main concepts and their relationships. The Leximancer tool also allows direct searching of the transcript texts to investigate occurrences of the concepts or their interrelationships. In addition, Leximancer quantifies the frequency of concepts within the transcript text. In this thesis, an application of Leximancer was used to visually analyse the differences and similarities in the transcript data. Leximancer lends itself to coding open ended interview questions and provides an efficient way to manage the concept maps. The results of the Leximancer qualitative data analysis are presented and discussed here.

In order to analyse conversational transcripts prepared as ‘Word’ documents, each speaker of each segment of utterances has to be identified, and a new speaker label inserted whenever a new speaker begins. As noted previously, participants in the interviews were identified by the label SPEAKER 1, SPEAKER 2 and continuing in numerical order at each of the locations, and are distinguished from other speakers with the same label by the interview number and location. Leximancer allows the selection, exclusion or comparison all the utterances of every distinct speaker.

Leximancer (qualitative analysis software) transcript content analysis was conducted to check if the interview transcript data, imported into the Leximancer program contained information related to the parameters and associated variables constituting the noted parametric model of the TAFE Design Education System. Leximancer conceptual maps were used to elaborate on the detailed NVivo obtained results, and to identify and visually describe the main concepts and themes contained in the interview transcript texts. These maps show the conceptual structure of the transcript information and allow direct searching of the documents in order to explore instances of the concepts or their interrelations. The Leximancer analysis software also quantifies and structures the concepts of a document set to enable exploration of interesting conceptual features.

\textsuperscript{176} Leximancer, (2008), \textit{Leximancer Manual Version 3}, \url{www.leximancer.com}
The Leximancer Manual Version 3 states that groups of words that generally appear together throughout a text are regarded as concepts in Leximancer. The associated words are weighted according to how frequently they occur in sentences containing the concept compared to how frequently they appear elsewhere in the transcript text. Sentences that contain a concept are identified if enough accumulated evidence is found beyond a set threshold. In addition, the concept definitions, learned by Leximancer from the text itself, are used in to determine the frequency of co-occurrence of concepts. The co-occurrence measure is used to generate the concept map. Concept seed words\textsuperscript{177} \cite{80} represent the starting point for the definition of concepts and each definition contains one or more seeds. The seed words can be provided by the program user or they can be automatically extracted from the text by the program. In this analysis the seeds have been extracted automatically.

As the parametric model with its constituent variables fully emerged only after the completion of the NVivo interview transcript coding process, the Leximancer trial did not directly identify concept seed words that were identical to the named parameters and constituent variables present in the model. The analysis of data extracts associated with identified concepts in Leximancer, and the resulting concept maps, confirmed that these concepts were relevant to the noted model that was developed to study and represent design education in the TAFE sector. The reasonable consistency of the Leximancer identified concepts and themes in the transcript texts, seem to indicate that although the interviews were semi-structured they all covered common grounds. This has provided an important role in the validation of the parametric model of design education in TAFE by showing the correlations of relevant coded concept texts between the NVivo and Leximancer analyses.

Figures 4.5.1 and 4.5.2 below show the results of the Box Hill interview transcript content analysis using the automatic mapping function of the Leximancer program. It shows the arrow pathway that links ‘TAFE’ to ‘WORK’ via a number of concepts clustered within overlapping themes. The relative size and brightness of the individual concepts on the map reflects its frequency in the transcript text. Green coloured concept labels represent proper names of people or places/ Institutions, while the other concept labels refer to other objects, locations, actions and terms that represent ideas. The larger the size of the concept label, the more

\textsuperscript{177} ibid
frequently the concept is coded in the text. The concepts are contextually clustered which means that concepts frequently appearing together in the text, will be close together on the map. The larger coloured circles on the map are “theme” circles and they assist with the interpretation by grouping the clusters of concepts.

It is interesting to note in this example that the pathway from the concept ‘TAFE’ to the concept ‘WORK’ directly and indirectly incorporates the concepts ‘people’; ‘curriculum’; ‘industry’ and ‘work’, as well as ‘education’; ‘training’; ‘practice’; ‘teaching’ and ‘working’. These are concept often associated with the TAFE sector. Figure 4.5.1 below also shows on the right hand side (RHS) a ranked listing of the word like concepts, according to the number of their occurrences and relevance. Using the % Visible Concepts slider at the bottom of the map display window, the number of visible concepts can be changed dynamically. It is interesting to note that the order in which concepts appear when moving the slider from left to right can be observed directly as a live display. When no concepts are displayed the slider is initially positioned at 0% on the left side. As it moves to the right, one by one, the concepts appear in the order of their frequencies. The “Degree of Rotation” slider, if required for display purposes, allows the model to be rotated.
Figure 4.5.1: Results of Leximancer analysis of data from Box Hill TAFE showing pathway from TAFE to WORK and ranked concepts
Figure 4.5.2, on the other hand, shows on the RHS the main ranked themes in terms of the connectivity and relevance. Below the bar graph all the theme related text passages can be reviewed using the scroll bar. “Design”, “Students” and “People” are the main themes within which the related concepts are clustered. Similarly, as noted in relation to the “%Visible Concepts” slider, moving the “% Theme Size” slider from left to right alters the number of themes that are visible.
Figure 4.5.2: Results of Leximancer analysis of data from Box Hill TAFE showing pathway from TAFE to WORK and thematic summary
Another example of concept mapping results, obtained using the automatic mapping function of the Leximancer program, comes from the transcript of the second interview conducted at Cooloola TAFE. Figure 4.5.3 below shows all the ranked concepts indicating their frequency of occurrence and relevance. It can be seen that some of the main concepts with the highest number of occurrences and relevancy include such concepts as ‘work’; ‘design’; ‘students’; ‘project/s’, ‘teaching’ and ‘industry’. The concept ‘design’ occurs very frequently because it is often used in combination with the other concepts: for example, ‘design work’; ‘design students’; ‘design projects’; ‘design teaching’ and ‘design industry’. This is to be expected since this thesis concerns itself with design education practice in the TAFE sector.

Figures 4.5.4 and 4.5.5 that follow show the arrow pathway that links ‘TAFE’ to ‘INDUSTRY’ via a number of concepts clustered within overlapping themes. Interestingly, in this example the pathway from the concept ‘TAFE’ to the concept ‘INDUSTRY’ directly and indirectly incorporates the concepts ‘teaching’; ‘project/s’ and ‘based’ as well as ‘learning’; ‘practice’; and ‘doing’. These are also concepts often associated with the TAFE sector practice. On the RHS of Figure 4.5.5 the themes are ranked and some of the main themes are “Design”; “Doing”; “Student” and “Skills” according to their connectivity and relevancy. This appears to be fairly consistent with the previously discussed result from Box Hill TAFE. The full set of concept maps for all the interview transcripts analysed using the automatic mapping function of the Leximancer analysis software are included for reference in Appendix 5.
Figure 4.5.3: Results of Leximancer analysis of data from COOLOOLA 2 showing the ranked concept clusters
Figure 4.5.4: Results of Leximancer analysis of data from COOLOOLA 2 showing pathway from TAFE to INDUSTRY and ranked concepts
Figure 4.5.5: Results of Leximancer analysis of data from COOLOOLA 2 showing pathway from TAFE to INDUSTRY and thematic summary

**Theme: design**

*Design* particularly in this sort of design discipline and because of very tight timelines for projects there might be a tendency to reinforce that in the teaching and the thinking that’s provided by having short, sharp timelines for processes. Is there any time for students to actually reflect about what the learning experience before was about before they move to the next one?

**Theme: terms**

*Terms* I guess I should clarify. I was referring to those employability skills in terms of teamwork collaboration and communication, effective management of self-performance and commitment to learning.

**Theme: doing**

*Doing* Most of the first years when they’re doing project work it’s teacher-based but it’s five teachers. So for example if anything goes through to actual diploma concepts I teach that side of it and then *theory* would teach the actual practicalities of the screen so there’s the two systems there.
The detailed results of the Leximancer analysis for all the interview transcripts used in this thesis can be accessed in Appendix 5. Comparisons of the analysis results and associated concept maps, with the identified concepts and themes from each of the participating TAFE Institutes, did not vary significantly as they appeared to be more similar than different. This suggested that there must be a higher level of coincidence than divergence between the noted interview transcript data and that the interviews largely consistently discussed the same topics and associated concepts. These results were taken into consideration when consolidating and summarising the results in the next phase of the analysis process with the aim of identify the teachers’ key points of view, concerns and suggestions, expressed by important stakeholders. The consolidation and summarising are presented and discussed in the next Section 4.6 of this chapter, which follows.
4.6 SUMMARIES OF RESULTS
The results of the recursive parsing of the interview transcript data and qualitative analysis, coded under the model parameters and selected constituent variables, have been summarised into consolidated tables. The complete summary tables of results for the parameters ATTITUDES, ISSUES, SUGGESTIONS, CURRICULUM DESIGN, CURRICULUM DETERMINANTS, STUDENT QUALITIES, TEACHER QUALITIES, TEACHING STRATEGIES, WAYS OF LEARNING, ASSESSMENT, and GRADUATE ATTRIBUTES, are located in Appendix 6.

Each parameter is discussed with respect to a summary table together with a listing of key points. By summarising the results of the recursive parsing and qualitative analysis it is possible to identify interview participants’ commonly held and shared views concerning issues, concerns and aspirations across the range of participating TAFE Institutes. This also assisted with identifying those issues and views that were particular to a group of participants at a specific TAFE Institute. In the following tables presented hereunder, ‘X’ indicates the distribution of shared opinions that are related to the parameter, which the table is associated with. The number of ‘X’ indicate how many institutes were in agreement on a particular point – the higher the number the higher the relative importance of the point. The points that were considered most important key points are highlighted in ‘red’ in the tables. Less important points are in ‘bold’ text and the other points that have been raised as ‘plain’ text.

4.6.1 The ATTITUDES parameter
Table 4.6.1.1 below is an extract from a consolidated summary of positive opinions obtained from participating teachers about the design education in TAFE. These opinions, arising from data relevant to the parameter ‘ATTITUDES’ and its constituent variables, have been considered as being positive in the sense that they indicated the good aspects of design education in the TAFE sector, which worked well and reinforced the commonly held and accepted values of the TAFE Design Education System.
Table 4.6.1.1: Extract from summary of findings pertaining to teachers’ positive opinions about the TAFE Design Education System – parameter ATTITUDES

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
<th>EM</th>
<th>GO</th>
<th>HO</th>
<th>LA</th>
<th>LE*</th>
<th>MO</th>
<th>RM</th>
<th>SW</th>
<th>TT</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teachers expressed the following positive opinions about TAFE design education</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1 Practicing designers, craft persons or artists teach in our programs (full time or part time) – they bring industry current experience critical to making students knowledgeable about the industry</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 We aim to develop independent creative designers/crafts persons/artist after three years of study who are sensitive to design issues at a paraprofessional level</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>3 There is now more awareness about design processes and how to teach someone to design – design including 3D design is the major focus</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4 Our graduate are valuable people because of their youth, enthusiasm, flexible versatility and innovation</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>5 The way the TP or curriculum is interpreted is driven by the local geographical context with respect to environmental issues and where the graduates will find work</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>6 We have a strong view and commitment to a holistic/very rounded and balanced design education that integrates the development of conceptual, practical and professional practice skills and knowledge</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>7 Students get support to develop required levels of achievement in key competencies as stated in the qualification – communication, teamwork, research, planning and organising – client interaction and social skill are important</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
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<tr>
<td>8 The new version of the TCF Training Package will address design thinking more effectively</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>9 Aiming to integrate focus on design skills across all programs offered, particularly in manufacturing areas – design as economic driver</td>
<td>X</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10 The pre-TP accredited design programs were developed with a large input from education practitioners</td>
<td>X</td>
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</tr>
<tr>
<td>11 Client-based design projects develops students’ communication and brief taking skills</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>12 Where there were gaps in my learning I made it my business to build those gaps into my teaching</td>
<td>X</td>
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<td></td>
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<tr>
<td>13 Working in the design areas is different from other technical areas in TAFE – teachers value design education</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>14 Work placement works very well with some firms</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>15 Graduates are changing the views of consumers about good design – more discerning and demanding/lifting the game</td>
<td>X</td>
<td></td>
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<tr>
<td>16 We use a flexible model that provides student with the opportunity to develop their own criteria</td>
<td>X</td>
<td></td>
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</tbody>
</table>
The key findings from Table 4.6.1.1 pertaining to positive opinions held across most of the TAFE Institutes are listed hereunder:

1. Practicing artists, designers and craft practitioners are being engaged to teach on both a full time and part time basis and that provides current and relevant industry knowledge and experience to bear on the education and training that is provided to students to a paraprofessional level. (Listed by 11 Institutes).

2. Currently there is a greater focus on design and creativity skills development, including a greater emphasis on these in the revised and updated Training Packages, as a result of improved understanding of the design thinking and development/ problem solving processes. (Listed by 5 Institutes).

3. Design teachers in TAFE have a strong commitment to a holistic, balanced and comprehensive design education that assists students to develop conceptual, practical and professional practice skills. (Listed by 5 Institutes).

The other 13 positive comments are listed in Table 4.6.1. There are also many other interesting opinions that had significant support within the focus group at the local level, however, they were not necessarily echoed in other locations where interviews took place. (Refer to the full table listing teachers’ opinions in Appendix 6).

For comparison and contrast purposes, Table 4.6.1.2 overleaf, is an extract from the consolidated summary of negative opinions expressed about design education in TAFE. These findings have been considered as being negative in the sense that they expressed and indicated that teachers were critical of some of the current aspects of design education in TAFE.
Table 4.6.1.2: Extract from summary of findings pertaining to teachers’ negative opinions about the TAFE Design Education System – parameter ATTITUDES

| TOPIC | The teachers expressed the following negative opinions about TAFE design education | BH | CO | CR | EM | GO | HO | LA | LE | MO | RM | SW | TT | WA |
|-------|---------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1     | The national Training agenda is impacting on 80% of programs delivered but States still control the curriculum and there are differences | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 2     | There is a dilemma for TAFE at the moment in that TAFE generally has a maturing workforce and they are not grappling with new technology at the level and speed expected by industry and students… The other part is trying to maintain stimulated staff. We need teachers that feel their creativity is still valued as it used to be | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 3     | Many design teachers are still struggling with the change …. to implementation of Training Package based programs…. This is a problem because the research and cognitive aspects of design training have been diminished. Research tends to kick in far more at the diploma and advanced diploma levels | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 4     | Teachers are not experienced with the aesthetic aspects of design – more focussed on practical problem solving and functionality of products. Concentrating on design principles and the underlying things I was told was a very old fashioned view of design education. When talking about design and creativity…. the best creative thinking happens in engineering – not the creative design industry…. | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 5     | Australian manufacturing industry needs to invest more in local design skills development. Design has been underrated by mainstream manufacturing in Australia…. There’s still a long way to go before manufacturers see their destiny in design as being a good investment…. I don’t think we have enough industrial designers to grow the industry. | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 6     | It is unfortunate that we don’t have an assessment system that really measures performance well because it goes through to that basic competency level I think that it’s sad and it has been for a number of years since ‘Outcomes Based Education’ was introduced. It is competency based and there is no incentive for the students to achieve excellence. | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 7     | A lot of times you have to rush through things that you shouldn’t have to and you’re forgetting any cognitive development. Just pushing the manual skills or the procedural sort of knowledge…..Sometimes in our programs the number of hours allocated to the design units is not very adequate | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
| 8     | The level of literacy is probably lower than it has been in the past… we’ve got people coming through the Year12 but they are not doing academic type subjects We don’t tend to push learning support because we could lose the student altogether and I found that it’s a fatal approach…. can be detrimental to their growth and imagination | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |
The key findings pertaining to negative opinions held across most of the TAFE Institutes are as follows:

1. Although the national Training reforms were dominating the control of the curriculum, and program delivery was still with the State Governments, this resulted in differences in the training provided. (Listed by all 13 Institutes).

2. TAFE was facing a significant challenge to retrain or replace a maturing workforce that is struggling to keep up with technological and system changes, and due to retire within a short period of time. (Listed by 8 Institutes).

3. The pragmatic and functional approaches to problem solving in TAFE design programs dominate due to a lack of teachers’ experience with the aesthetic and creative aspects of design – not enough time is allocated to develop cognitive and core skills that underpin design practice. (Listed by 4 Institutes).

Other critical points raised but not widely agreed with included:

1. Australian manufacturing industries are moving production process out of Australia, and they need to be encouraged to invest more in local design skills development to support product development and off-shore manufacturing. (Listed by 3 Institutes).

2. The introduction of competency based training and assessment does not provide the same incentives to students to excel in their design work as compared with graded assessment. (Listed by 2 Institutes).

3. Pre-requisite entry level skills, including literacy, are not as highly developed up to Year 12 as students now more often choose to study the more practical vocational subjects in the secondary education sector. Students are reluctant and not encouraged to undertake remedial studies to support their design education and training. (Listed by 2 Institutes).

Only the first two findings attracted broader support across the range of selected Institutes. (Refer to the full table listing teachers’ opinions in Appendix 6).
The next Table 4.6.1.3 overleaf, is an extract from the consolidated summary of opinions which were considered to be neutral in the sense that teachers made descriptive statements about their situational context and important considerations without implying any praise or criticism of the TAFE design education system. The main findings are as follows:

1. There was some common agreement about teachers’ capacity to teach students the design skills, thinking processes, and to explain how designers view and think about the world. (Listed by 3 Institutes).

2. Irrespective of born design talent, some teachers felt that it is possible to teach students to design creatively provided that they are encouraged to develop their own talents and design methodologies. (Listed by 3 Institutes).

The other notable topic raised in the discussion concerned the originality of students’ design work and the degree to which design solutions are appropriated and modified by some students for submission as their own work. Preventing and dealing with instances of plagiarism in design education programs can increasingly be a problem for some teachers. (Refer to the full table listing teachers’ opinions in Appendix 6).
Table 4.6.1.3: Extract from summary of findings pertaining to teachers’ neutral opinions about the TAFE Design Education System – parameter ATTITUDES

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<th>TOPIC</th>
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</thead>
<tbody>
<tr>
<td>Design…it’s a way of seeing the world, it’s a process and those things can certainly be taught</td>
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<tr>
<td>Design as a practice is not a talent and you don’t ever teach anyone anything any more. You only help them to learn something. I think someone who is not a naturally gifted designer…. can still work at it and become a competent designer….But I’d like to think that everyone who wants to become a designer can gain the skills and reach that objective. Design practice is where there are those that are born with a gift, talent and there are those who we say are creative to various degrees but in any case they are focussing on developing that capacity themselves. Learning some methodologies that will lead to creative outcomes…</td>
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<tr>
<td>The focus is about the individual developing their own (design) methodology</td>
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<td>There are situations where you have that divine inspiration…. Learning to trust that (is important). But you need to consider ‘How can I explain my thing?’ If you start with logic and build it up through logical thought quite often horrible design comes out of it.</td>
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<tr>
<td>I’m sure I’ve got students who just ‘knock off’ designs or do a moderate amount of changing and there others who think originally. … There are not a lot of people that create something completely original. It’s always going to be derivative. Students sign a declaration… that it’s their own work. As far as I’m concerned that’s as far as I’ll take it unless it is so obvious that it’s painful.</td>
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</tbody>
</table>

* No Data
4.6.2 The ISSUES parameter

Following on from the discussion of the results for the ‘ATTITUDES’ parameter, it is appropriate here to discuss the results of analysis for the parameter ‘ISSUES’. The complete set of tables of summarised results can be found in Appendix 6. Table 4.6.2.1 below is an extract from the consolidated summary pertaining to teachers’ views about the some of the positive actions and strategies that are being implemented to address some of the ongoing concerns within the TAFE Design Education System. These concerns arose from the analysis of the transcript data relevant to the parameter ‘ISSUES’. The main positive findings about what is being done to overcome some of the problems and where there is significant agreement across the Institutes are:

1. Student participation in national design competitions and public exhibitions of their work is useful for benchmarking and achievement showcasing purposes. (Listed by 7 Institutes).
2. Establishing and maintaining close links with industry representatives provides opportunities for consultation, feedback and work placement to develop teachers’ and students’ awareness of current industry practices. (Listed by 6 Institutes).
3. Institutes are implementing strategies to obtain feedback from stakeholders for quality assurance purposes and to inform the evaluation, review and improvement processes to maintain the integrity of TAFE design education. (Listed by 6 Institutes).
4. Continuing to debate and in some cases to implement graded assessment practices that call for independent assessment panels. (Listed by 6 Institutes).
5. Moving towards standardised templates for presenting required information to students. (Listed by 3 Institutes).

In relation to the constituent variable ‘graded assessment’, more comprehensive results will be presented and discussed in the subsection related to the parameter ASSESSMENT located further on in this section of the thesis. (Refer to the full table listing teachers’ opinions in Appendix 6).
Table 4.6.2.1: Extract from summary of findings pertaining to teachers’ perceptions about successful strategies/actions being adopted by the TAFE Design Education System – parameter ISSUES

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>The following implemented strategies/actions were highlighted by respondents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITIVE</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Using student participation in national external competitions, exhibitions to demonstrate students’ achievements to the industry and public and to benchmark the quality of training outcomes and work with other institutes</td>
</tr>
<tr>
<td></td>
<td>X</td>
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<tr>
<td>2</td>
<td>Time and effort invested in building relation with industry results in work placement opportunities. Work placements are built into programs and add value by developing industry awareness. Part-time students who achieve required program outcomes by completing workplace projects can accelerate their training. Teachers join and actively participate in the activities of professional industry associations. Regular industry reference group meetings through the year inform industry about program delivery and provide industry feedback.</td>
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<tr>
<td></td>
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<tr>
<td>3</td>
<td>Implementing strategies to identify problems, find options for improvement and for monitoring implementation of improvements. There are many formal quality assurance processes and scheduled audits in place. Students provide feedback through evaluation surveys/focus groups Employed graduates are surveyed/consulted about training gaps and improvements External clients who participate in student projects provide feedback</td>
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<tr>
<td></td>
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<tr>
<td>4</td>
<td>There is an ongoing and active debate about using graded assessment It is desirable to use independent panel assessment in design programs to avoid challenges to their professional assessment judgements</td>
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<td></td>
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<tr>
<td>5</td>
<td>Reviewing, adopting and developing standardised templates for required documentation</td>
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<td></td>
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<tr>
<td>6</td>
<td>Created a ‘safe consulting setting’ where stakeholders’ interests are represented and everyone is empowered to sort out program teaching issues There is good peer work between teachers in manufacturing trade areas and design teachers to ensure quality training outcomes were achieved</td>
</tr>
<tr>
<td></td>
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<tr>
<td>7</td>
<td>The industrial relations climate raised expectations for increasing productivity Roles of experienced fulltime teachers are expanding to include delivery program coordination and management of RTO Standards compliance and quality assurance processes Teachers/ managers are working around compliance requirements to maintain the integrity and relevance of learning programs and to effectively manage workload stress</td>
</tr>
<tr>
<td></td>
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<tr>
<td>8</td>
<td>Engaging external visiting ‘designers’ to enrich learning opportunities and to validate what is being delivered</td>
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<tr>
<td></td>
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<tr>
<td>9</td>
<td>Mapping of existing programs non-TP programs to Training Package requirements saves time in identifying equivalence and gaps</td>
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</tbody>
</table>
The next Table 4.6.2.2 overleaf and continuing on the following two pages, presents an extract from the consolidated summary of teachers’ negative perception of ongoing concerns and obstacles that continue to frustrate them in their work within the TAFE design education system. There are five (5) main areas that teachers considered impacted significantly in a negative way on their job satisfaction and morale:

1. Decreasing levels of funding and support resources combined with increasing enrolments and outcomes expectations. (Listed by 10 Institutes).

2. Increasing focus on Quality Assurance, performance standards and compliance requirements impedes effective teaching. (Listed by 10 Institutes).

3. Increasing proportion of the non-teaching workload is impacting on teachers’ ability to engage effectively with teaching. (Listed by 8 Institutes).

4. The introduction of competency based training and assessment with Training Package based curriculum into the creative industries/ design education areas, their impact on study articulation pathways to the higher education sector, and skills/knowledge recognition processes. (Listed by 7 Institutes).

5. Changes in the industrial climate caused by increasing deregulation and casualisation of the workforce within TAFE and the creative industries. (Listed by 2 Institutes).
Table 4.6.2.2: Extract from summary of findings pertaining to teachers’ concerns about the TAFE Design Education System – parameter ISSUES

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>The following ongoing concerns were highlighted by respondents:</th>
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</thead>
<tbody>
<tr>
<td>NEGATIVE</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>• The available time for teaching is decreasing due to funding/resource reductions and additional non-teaching duties and responsibilities – impacting on teachers' goodwill and quality of training  &lt;br&gt;• Program funding relies too heavily on record keeping and audits of student records  &lt;br&gt;• It is very challenging to integrate presentation/workshops activities by visiting designers due to the time constraints placed on delivery of programs  &lt;br&gt;• There is strong pressure to maintain high levels of student successful completion rates  &lt;br&gt;• Students are getting reduced levels of learning support in class/rushed teaching and learning intensity is too stressful  &lt;br&gt;• The funding/budget is not adequate to support the development and maintenance of online resource material</td>
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<td>X X X X X X X X X X X X X X X X</td>
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</table>
The following ongoing concerns were highlighted by respondents:

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<th>TOPIC</th>
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<tr>
<td>• Workloads, particularly for diminishing numbers of full time teachers are increasing due to increasing resource/online development, administration, compliance/accountability, quality assurance and auditing, restructure/direction/policy changes, leadership reviews, RPL and assessment requirements.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>• High levels of casual teachers is placing pressure on smaller numbers of full-time teachers to provide team leadership; produce unit outlines, workbooks and other resources; plan and coordinate/support and mentor.</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>• The current method of measuring teachers’ workload in terms of classroom teaching hours does not acknowledge the increasing workload associated with the regulatory, administrative, planning and coordination, mentoring and quality assurance requirements of the job</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>• Checking that the negotiated and workplace projects meet required learning outcomes and program requirements places additional workloads on teachers</td>
<td>X</td>
<td>X</td>
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<td>• Program coordinators in some cases are required to teach a full teaching load without reductions</td>
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<tr>
<td>• There is very little clerical teacher support and have to be self reliant</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>• Development and accreditation of programs is a time and effort consuming process</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>• The introduction of more flexible and client-centred customised training to meet their needs involves additional training and assessment work</td>
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<tr>
<td>• Increased teaching loads mean that teachers teach more subjects and have less time to develop depth in learning – too much focus on ‘how?’ and not on diagnostic, analytical and research to understand ‘why?’</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>• Client based projects require more work to effectively liaise and manage the variables</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>• Teachers’ available time, morale/job satisfaction, commitment and goodwill is depleted as teachers feel overwhelmed by their workload – working to rule</td>
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<td>X</td>
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</tbody>
</table>

Continued on the next page…
Table 4.6.2.2: Extract from summary of findings pertaining to teachers’ concerns about the TAFE Design Education System – parameter ISSUES continued….

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>The following ongoing concerns were highlighted by respondents:</th>
<th>BH</th>
<th>CO</th>
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<tbody>
<tr>
<td>4</td>
<td>• The limited scope of theoretical content and the imbalance between theory and practice in Training Packages for the creative industries is a concern</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
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<td>• There are too many units in the program and the assessment requirements are too fragmented due to a lack of integration</td>
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<td></td>
<td>• The program delivery structure based on separate unit and lack of integration make it more difficult for students to learn and apply required knowledge and skills</td>
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<td></td>
<td>• There are significant differences in the number of hours allocated to some units with very similar outcomes in different Training Packages – (stage production)</td>
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<td></td>
<td>• Students get frustrated by the level of duplication and similarity of outcomes of some Training Package/ qualification units in programs</td>
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<td>• The Training Packages in design areas do not achieve articulation outcomes at the same levels and teachers have to ‘value add’ to achieve the required standards for effective study pathways – increasing gap between industry and academic requirements</td>
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<td></td>
<td>• Audits/ accountability for assessment of individual competence elements involves more recordkeeping work</td>
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<td>5</td>
<td>• Changes in the industrial climate, reduced funding levels and casual employment of teachers is reducing their commitment and effectiveness while increasing the need for increased supervision and administration</td>
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<tr>
<td></td>
<td>• The industrial climate makes it difficult for a manger to monitor/ supervise the teaching practices and curriculum compliance of individual teachers</td>
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<tr>
<td></td>
<td>• There are instances when outdated and curriculum non-compliant material is provided to students</td>
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</tbody>
</table>
4.6.3 The SUGGESTIONS parameter

This section of the thesis concerns itself with the analysis results of data associated with the parameter ‘SUGGESTIONS’. As foreshadowed earlier in Table 4.6.1, this important parameter contains the teaching practitioners’ expressed ideas and aspirations about current trends and suggestions, and how in future the TAFE design education system, its practices and outcomes might be improved. (Refer to the full table listing teachers’ opinions in Appendix 6).

Table 4.6.3.1 below is an extract from the consolidated positive findings about this parameter which highlight the current trends in TAFE design education. The key trends are as follows:

1. TAFE training is responding to the changing employment practices in the design industries by emphasising preparation for casual and self-employment. (Listed by all 13 Institutes).
2. Closer links between TAFE and the creative/design industries it services are developing. (Listed by 9 Institutes).
3. TAFE is moving towards a more flexible, responsive and student-centred approach to design education in the final stages of programs. (Listed by 8 Institutes).
4. TAFE is conducting some joint projects that involve project based learning, interdisciplinary collaboration and encourage collaborative learning in simulated workplace settings. (Listed by 7 Institutes).
5. TAFE is recruiting younger teachers who may have less industry experience, but relate to students more effectively. (Listed by 7 Institutes).
6. TAFE is adopting ITC platforms and remote project collaboration strategies that reflect current and emerging design industry practices. (Listed by 7 Institutes).
7. The introduction of Training Packages is placing greater emphasis on workplace training yet there appear to be less opportunities in local government and large organisations for paid workplace design training – traineeships/internships. (Listed by 7 Institutes).
This last finding represents a paradoxical dilemma for TAFE. Recent policy changes at the national state levels, aimed at addressing skill shortages, are placing a greater emphasis on training in the workplace; however, there appear to be fewer workplace training opportunities in the design industries.
Table 4.6.3.1: Extract from summary of findings pertaining to apparent trends in TAFE Design Education System – parameter SUGGESTIONS

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>TRENDS</th>
<th>BH</th>
<th>CO</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Apparent trends in TAFE design education are:</td>
<td>TAFE training is starting to recognise/ respond to the changing nature of employment towards smaller enterprises offering more casual/fixed term self-employment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>Industry and TAFE are developing closer links/ relationships to assist with employee recruitment</td>
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<td>Moving towards allowing negotiated studies/ projects for final stage diploma students</td>
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<td>Design projects and practices are moving towards greater reliance on collaboration between disciplines and TAFE is developing programs to increase awareness of design practices and outcomes in all areas of training to reinforce the importance of design as a driver of economic development</td>
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<td>Commencing to conduct joint/ interdisciplinary design projects between junior and senior students with peer mentoring</td>
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<td>Recruiting younger teachers who relate well to the current students but have lower levels of industry experience</td>
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<td>TAFE design training is responding to higher levels of sophistication to meet rising performance standards and expectations</td>
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<td>Promoting collaborative learning by setting up more flexible classroom arrangements that simulate design studio office environment – workstation; lecture/meeting/discussion space, layout and display areas</td>
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<td>TAFE design training is using ICT platforms and remote project collaboration strategies as Australian designers are increasingly collaborating/ providing services to international clients/ manufacturers</td>
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<td>TAFE is moving towards implementing a broader range of flexible learning and program delivery strategies and platforms to reduce costs</td>
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<td>Using project based training that simulates authentic workplace experience and introduces students to design practice/ business management issues – running costs/ charging rates/ profitability</td>
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<td>Implementing a student-centred and flexible approach to learning that caters to a broader range of training needs and abilities to study</td>
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<td>Encouraging design students to undertake separate industry-based practice management training</td>
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<td>There are decreasing opportunities in local government and large organisations for paid workplace design training – traineeships/ internships</td>
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<td>The introduction of Training Packages is placing greater emphasis on workplace training</td>
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In addition as shown in Table 4.6.3.2 overleaf, the analysis of the data revealed a range of constructive suggestions for effecting improvements in the TAFE design education system. Refer to the full list of suggestions is located in Appendix 6. The key suggestions include:

1. More provision of design foundation programs for younger school leavers (Year 10 and 11) who enrol in TAFE design education. (Listed by 5 Institutes).
2. A review the information communication strategies and formats to simplify and minimise the amount of duplication and information presented in unit outlines regarding unit and assessment requirements. (Listed by 5 Institutes).
3. Allowing the use of graded competency assessment where it is appropriate to do so. (Listed by 5 Institutes).
4. Developing and integrating small business and practice management units into design education programs more effectively to improve graduates’ preparation for currently preferred industry models of employment and self-employment. (Listed by 3 Institutes).
5. Increased research into emerging design related occupations, employment and career opportunities arising from technological and regulatory changes in the building and other creative industries, and to develop relevant training. (Listed by 2 Institutes).
Table 4.6.3.2: Extract from summary of findings pertaining to teachers’ suggestion for improving the TAFE Design Education System –parameter SUGGESTIONS

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<td>1. There should be more underpinning foundation programs where the</td>
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<td>majority of new students are young school leavers</td>
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<td>documentation associated with program delivery and assessment to</td>
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<td>make it more user friendly and effective</td>
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<td>3. Graded assessment would be preferable in design programs because</td>
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<td>industry stakeholders are asking for it and it would motivate</td>
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<td>students to strive for excellence</td>
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<td>4. There is a need for more small business/practice management</td>
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<td>training integrated into current design programs to adequately</td>
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<td>prepare graduates for the preferred model of freelance/ contractual</td>
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<td>self employment in design/ creative industries</td>
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<td>5. Changes to the Building Code offer new training opportunities for</td>
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<td>accredited paraprofessional energy auditor/ certifiers</td>
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<td>6. The use of existing interactive internal climate control design</td>
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<td>software tools should be integrated into building design training to</td>
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<td>improve building energy efficiency/ sustainable practices</td>
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<td>7. Flexible online programs, summer schools, accelerated programs,</td>
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<td>specialised short programs and weekend workshops should be</td>
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<td>8. There is a need to monitor industry trends and teacher profile</td>
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<td>recruitment requirements to quickly respond to emerging training</td>
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<td>9. The design/ creative industries should develop a greater</td>
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<td>community awareness/ sponsorship/investment to expand their role and</td>
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<td>10. It is desirable to build into training adequate time for student</td>
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<td>reflection about learning and project outcomes after each project</td>
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<td>11. Design training should include the practice of working/</td>
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<td>12. Different teaching approaches should be developed to encourage</td>
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<td>13. TAFE operating hours should be deregulated to allow continuous</td>
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<td>14. Where there are no equivalent Training Package skills sets/</td>
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<td>qualifications there should be customised short programs that meet</td>
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4.6.4 The CURRICULUM DESIGN parameters

The analysis of the data shows evidence of ongoing debates about the merits of older style, learning outcomes based curricula for accredited programs that were prevalent before the introduction of Training Packages into TAFE design education fields. The period when these interviews were conducted by the writer coincided with the transition period, when Training Package based programs were gradually replacing existing older accredited program curricula, especially, in the creative industries sector. It became evident from the data that the pace of the change over varied across different State jurisdictions. As noted, refer to Appendix 6 for detailed analysis results.

Table 4.6.4.1, shows an extract from the consolidated results of the analysis of participants’ statements in relation to existing accredited curricula, and the changeover to the Training Package based curricula in their areas of design education.
**Table 4.6.4.1: Extract from summary of findings pertaining to non-Training Package based accredited programs in the TAFE Design Education System – parameter CURRICULUM DESIGN**

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<tbody>
<tr>
<td>This table lists some of the comments that were made by interviewees in relation to existing accredited programs and the prospects for their continuation as the change over to Training Package based training is implemented and new relevant Training Packages are progressively developed.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 Will continue to offer interim accredited diploma and advanced diploma programs – where no TP equivalents beyond Certificate IV level</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Will develop non-TP based programs or extended existing program accreditation to allow students complete and take out old qualification</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Some resisting change from accredited programs to the national TP-based environment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 There is no capacity to develop accredited diploma/advanced diplomas where no equivalent level qualifications exist in the Training Package</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Curriculum is driven by State based accredited competency standards</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Accredited programs that have their accreditation extended are becoming outdated while waiting for their equivalent TP based qualifications</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7 Accredited diploma and advanced diploma programs are not being replaced by TP equivalents because there are no equivalents</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8 Accredited programs allow a more complete and rounded education</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9 Accredited programs allow development of relevant discipline practice skills and knowledge beyond the TP based Certificate IV level without having to assume that graduates will be taking on practice management roles</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10 Accredited programs have the same content as TP based programs but are structured in a different way and their outcomes can be mapped across to find equivalents</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11 It is difficult to map existing accredited program outcomes to the corresponding TP’s</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>12 Accredited program curriculum is written in terms of inputs to achieve required outcomes and not outputs</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>13 TAFE educational practitioners have more input into the design of accredited programs</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>14 Accredited program qualifications are not as readily recognised in other states</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>15 Teacher’s own learning experiences influence their teaching values and practices</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>16 Accredited program structures and subjects are defined by rigid boundaries that make it difficult to integrate them during program delivery</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>17 Industry feedback suggests that traditional subject titles do not convey much meaning in terms of achieved skills and knowledge, but they relate and correspond to previous personal training experience</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 It is difficult to specify innate aspects of design abilities, methods and processes</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>19 Accredited programs offer scope to lead the development of training in emerging new design areas of practice</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Only limited data was obtained in relation to this aspect of the study*
Table 4.6.4.1 results that identified more widely held views about this transition process can be summarised as follows:

1. Where no equivalent Training Package qualification could be identified, non-Training Package based accredited programs would continue to be offered in some States (Queensland; New South Wales; Tasmania; Victoria and Western Australia) as an interim measure, to allow students to complete their studies and take out the old qualification. (Listed by 7 Institutes).

2. Where diploma/advanced diploma level design programs existed before the introduction of Training Packages, there was no scope to offer the qualifications in some States (Queensland; New South Wales; Tasmania and South Australia) at this level if the relevant Training Package did not include this level of qualification. (Listed by 6 Institutes).

These findings appear to be consistent with the common premise that duplication of nationally endorsed Training Package qualifications is generally not permitted under the current policies. Other findings include:

1. The perception that some States, (New South Wales; Victoria and Western Australia), are using design competency standards endorsed at the state level in addition to the national standards. (Refer to Appendix 6).

2. Resistance to the changeover to Training Package based curriculum still exists in some jurisdictions. (Listed by 6 Institutes).

3. Some accredited non-Training Package based curricula were becoming outdated due to extensions of accreditation. (Listed by 4 Institutes).

4. The perception that the existing, older style accredited curricula provided a more holistic and rounded education that exceeds the Training Package outcomes. (Listed by 3 Institutes).

Statements made in support of older accredited program curriculum and shared at the local Institute level include:

1. Accredited programs have the same content as Training Package based programs but that they are structured differently and their outcomes can be easily mapped to the training Package requirements. (Listed by 3 Institutes).
2. Accredited programs emphasise inputs to achieve required outcomes, and
3. Offer scope to lead the development of relevant design education and training in emerging areas of design practice. (Listed by 1 Institute).

Some of the other identified criticisms of Training Package based curricula include:

1. Where Training Packages do not include qualifications at diploma level, the change over is seen by teachers as a reduction of the quality and recognition of the skills and knowledge that underpins design industry practice. (Listed by 4 Institutes).
2. Difficulty with mapping existing curriculum to Training Package requirements. (Listed by 1 Institute).
3. The scope for input from TAFE design teachers during training Package development was reduced. (Listed by 1 Institute).

The full extent of any divisions among TAFE design education practitioners was not researched in this thesis and the implementation of Training Package based curricula is still progressing while a smaller number of non-Training Package based programs is also being developed and accredited.

The following Table 4.6.4.2 overleaf, is an extract from the summary of consolidated findings relating to teachers’ both positive and negative views pertaining to the implementation of Training Package based curricula, especially in TAFE design education fields.
Table 4.6.4.2: Extract from summary of findings pertaining to *Training Package based* accredited programs in the TAFE Design Education System – parameter

**CURRICULUM DESIGN**

<table>
<thead>
<tr>
<th>Positive comments</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
<th>EM</th>
<th>GO</th>
<th>HO</th>
<th>LA</th>
<th>LE</th>
<th>MO</th>
<th>RM*</th>
<th>SW</th>
<th>TT</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 State policy requires the implementation of Training Packages where they exist</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 The introduction of competency based Training Packages has caused teachers to re-examine what it means to be competent and review of teaching and assessment practices towards a more student-centred delivery mode that places greater emphasis on integration and development of generic Employability Skills TAFE is rapidly evolving its teaching practices in response the introduction of Training Packages</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 There are hybrid accredited programs that deliver selected national UoC’s*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 The broadcasting section of the Film TV Radio &amp; Multimedia Training Package met teachers’ and industry expectations</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Mapping of existing programs to the Training Package requirements was not difficult</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 The Visual Arts Craft &amp; Design Training Package covers suitable qualifications up to Certificate IV and then moves into arts management practice (at diploma levels)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative comments</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
<th>EM</th>
<th>GO</th>
<th>HO</th>
<th>LA</th>
<th>LE</th>
<th>MO</th>
<th>RM*</th>
<th>SW</th>
<th>TT</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 There is a lack of focus on design skilling in the Training Package programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>There is a need to include more Units of Competence related to design practice and business management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Training Packages do not meet students’ expectations and purposes and there is a mismatch between industry needs and Training Package requirements, and between older accredited programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 The VAC&amp;D Training Package does not develop relevant design skills at diploma and advanced diploma levels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 There is a perception that CBT is fragmenting the skills development processes Design competencies are described too broadly and are too open to interpretation The Training Package implementation context makes it difficult to achieve a balanced and integrated development of underpinning generic skills and practical technical skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
On the positive side the main findings are:

1. State policy on Training Packages implementation in areas where they have been developed is being implemented. (Listed by 7 Institutes).
2. The introduction of Training Packages has allowed teachers to review what it means to be a competent designer and to reconsider their teaching and assessment practices towards a more student centred approach that emphasised the integration of underpinning core skills (Employability Skills). (Listed by 4 Institutes).
3. Hybrid curriculum is being developed in some cases to deliver learning outcomes and selected Units of Competency. (Listed by 3 Institutes).
4. The part of the Film TV Radio and Multimedia Training Package that related to the broadcasting industry sector met industry’s and teachers’ expectations. (Listed by 3 Institutes).
5. Mapping of existing programs to Training Package requirements in some cases was not difficult. (Listed by 3 Institutes).
6. The Visual Arts Craft and Design Training Package delivered relevant design competencies up to Certificate IV level and addresses the needs of arts administration at the diploma levels. (Listed by 3 Institutes).

However, there were some criticisms of Training Packages from the teachers, mainly related to the following points:

1. There was a lack of focus on developing relevant design and practice management business skills in some creative industry Training Packages. (Listed by 4 Institutes).
2. In some cases, there were reported perceptions that creative industry sector Training Packages were not meeting students’ and industry practitioners’ expectations. (Listed by 4 Institutes).
3. The initial version of the Visual Arts Craft and Design Training Package covers design qualifications only up to Certificate IV level, with the exception of the Advanced Diploma of Arts Management. (Listed by 4 Institutes).
4. Competency Based Training that underpins Training Packages fragmented the design skills development processes and the design competencies were too broadly defined for interpretation and implementation purposes in order to achieve the required underpinning core and technical skill outcomes. (Listed by 4 Institutes).

It should be noted that Version 3.0 of the Visual Arts Craft and Design Training Package 178 [104], that now includes the Diploma of Photoimaging and Advanced Diploma of Creative Product Development, was only released in April 2008 after an extensive review.

Qualifications up to Certificate IV level usually can be completed within a year. It was reported that it is difficult to find employment in the design industry after one year of design education, as there are very limited employment destinations. The Certificate IV level qualification does not reflect the higher characteristics of learning outcomes 179 [105] usually preferred by design industry employers. Graduates who complete two years of design education at the diploma and advanced diploma levels are more employable, and compete with university graduates in the employment market. (Refer to the full table listing teachers’ opinions in Appendix 6).

4.6.5 The CURRICULUM DETERMINANTS parameter

The summarised results of data analysis related to the parameter ‘CURRICULUM DETERMINANTS’ and its selected constituent variables are presented and discussed below. The focus of this analysis is on the selected constituent variables listed below:

- Industry training needs (see Table 4.6.5.1).
- Student training needs and (see Table 4.6.5.2)
- Emerging training needs (see Table 4.6.5.3)

The major noteworthy results have been captured in the following tables. Table 4.6.5.1 below, is an extract from the summary of findings in relation to teachers’ perceptions about the training needs of industry. (Refer to the full table listing teachers’ opinions in Appendix 6).

### Table 4.6.5.1: Extract from summary of findings pertaining to teachers’ perceptions about training needs of industry – parameter CURRICULUM DETERMINANTS

<table>
<thead>
<tr>
<th>TOPIC: This table summarises the TAFE design teachers’ perceptions of what industry’s training needs are based on the varying degrees of consultation that takes place between the RTO/teaching staff and industry employers/practitioners.</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
<th>EM</th>
<th>GO</th>
<th>HO</th>
<th>LA</th>
<th>LE</th>
<th>MO</th>
<th>RM</th>
<th>SW</th>
<th>TT</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Graduates with effective current and transferable practical technical skills/multi-skilling and knowledge to implement design/production processes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Explicit integration of generic Employability Skills/attributes development</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Nationally recognised qualifications that suit a variety of small to large enterprises</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 Close consultation with training providers to identify training needs at enterprise level</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Training that reflects authentic workplace experience/task simulations</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Two-year trained design graduates with Diploma or Advanced Diploma/with optional early exits</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7 Business/practice and project management; market research and marketing for sectors where predominantly workers are self-employed/freelance practitioners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8 Effective teamwork and multi-disciplinary collaboration skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9 Current competence in using up to date computer hardware and software</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### Table 4.6.5.2: Extract from summary of findings pertaining to teachers’ perceptions about training needs of students – parameter CURRICULUM DETERMINANTS

<table>
<thead>
<tr>
<th>TOPIC: This table summarises the TAFE design teachers perceptions about the training needs of students</th>
<th>BH</th>
<th>CO</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Pre-requisite entry requirements – Year 10 and/or Year 12 secondary school OR mature age</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>2 Study pathways with early exits/articulation between sectors</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Diploma or Advanced Diploma (2-3 years) level qualifications for career in design/art practice</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>4 More explicit and integrated focus on contextualised generic Employability Skills to support learning and employment design/art practices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>5 Foundation design programs at Certificate levels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Balanced approaches to integrated design/art theory, traditional manual and digital technology based practices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>7 Professional practice/business and project management skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8 Relevant and current computer/digital media skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9 Creative thinking and problem solving using design tools and methods</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>10 Practical industry experience before employment – work placements; on-the-job; mentoring; virtual practices/incubator practices</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
</tbody>
</table>
The main findings in Table 4.6.5.1 that had broad support across the majority of participants are:

1. That the design industry, in addition to relevant design and technical skilling, requires its employees to be competent in the core underpinning Employability Skills and to possess well developed desirable attributes. (Listed by 9 Institutes).

2. That graduates needed to have current technical multi-skilling that was transferable to implement design/production processes. (Listed by 8 Institutes).

3. That there was need for closer consultation with industry to develop flexible nationally recognised suites of qualifications that would suit the needs of a variety of small and large enterprises. (Listed by 6 Institutes).

The continuing consultations and partnerships with industry bodies and enterprises have reportedly led to revisions of Training Packages more recently in response to these needs. There is more explicit emphasis on the integration of Employability Skills and attributes in current curriculum development and design education practice. The level of electivity in Training Package qualifications beyond the required core units has been broadened. Other findings about industry training needs in Table 4.6.5.1 include:

4. The need to make TAFE design education provide authentic workplace experiences through workplace simulation that reflect industry tasks in studio settings and through work placements in industry for senior students prior to graduation. (Listed by 6 Institutes).

5. There is preference among employers to offer employment to graduates who have completed at least two years of TAFE design education at the diploma/advanced diploma levels. (Listed by 4 Institutes).

6. There is a need to integrate and develop business/practice and project management; market research and marketing skills for sectors where predominantly workers are self-employed/freelance practitioners. (Listed by 4 Institutes).

7. There is the need to develop teamwork and collaboration skills. (Listed by 4 Institutes).
8. There is need for graduates who were competent in using current computer hardware and software. (Listed by 4 Institutes).

The TAFE design education system is striving to respond to the identified needs and to meet the expectations using a number of strategies that include industry consultation and partnerships leading to work placements and employment, recruitment of industry practitioners, increasing investment in facilities and computer workstations and implementing student team project within and across design disciplines.

Table 4.6.5.2 above shows an extract from the summary of findings in relation to teachers’ perceptions about the training needs of students, these include:

1. Students commencing TAFE design education should have met required entry pre-requisites if they are school leavers depending on the qualification level they are seeking. (Listed by all 13 Institutes).

2. Students are interested in having effective study pathway options with good articulation outcomes between education sectors. (Listed by all 13 Institutes).

3. Students need to complete 2-3 years of TAFE design education at a diploma/advanced diploma level to enter employment in the design industry sector. (Listed by 12 Institutes).

4. Students need to develop core underpinning Employability Skills in support of their learning and employment. (Listed by 11 Institutes).

5. Students should be encouraged to complete design foundation programs to assist them to prepare a portfolio for the selection into higher level TAFE design programs or if they missed out on doing design related subjects. (Listed by 10 Institutes).

6. Changes on employment pattern in the industry are causing students to place a greater importance on developing entrepreneurial business and project management skills in preparation for employment. (Listed by 10 Institutes).

7. Students need to develop creative thinking and problem solving using design tools and methods. (Listed by 10 Institutes).
8. Students seek and need to develop current computer/digital media skills underpinned by theoretical and practical technical skills and knowledge. (Listed by 9 Institutes).

9. Students need practical industry experience before employment. (Listed by 9 Institutes).

These results appear to confirm, and to a large extent, coincide with the teachers’ perceptions of industry training needs discussed previously, and it is reasonable to conclude that these perceptions are similar. (Refer to the full table listing teachers’ opinions in Appendix 6).

The Table 4.6.5.3 overleaf, shows an extract from the summary of findings in relation to teachers’ perceptions about the desirable training needs. In other words, changes that need to be acted upon, these include:

1. The need for more flexible Training Packages that provide training which respond to industry needs by simulating current and emerging industry practices and are focussed on design and technical multi-skilling. (Listed by 8 Institutes).

2. Design education that places a greater emphasis on developing creativity, design thinking processes and methods that extend the inventiveness capacities of the students and technologies. (Listed by 6 Institutes).

3. Increased focus on career planning in response to shift towards greater self employment – business, project and practice management. (Listed by 6 Institutes).

4. Integration of sustainable and energy efficient design practices into design education. (Listed by 5 Institutes).

5. Expansion of professional development and training for existing design industry workers – TAFE short specialised courses. (Listed by 3 Institutes).

These findings are held fairly widely across the participating Institutes and across the range of design disciplines catered to by the TAFE design education system. They also appear to reflect the participants’ and industry’s preoccupation with immediate issues that beset their every day practices and responsibilities. It also highlights a greater need for the TAFE design education
system to undertake more proactive investigation into emerging fields of design practice and applications in order to identify and service training needs in a timely manner.
Table 4.6.5.3: Extract from summary of findings pertaining to teachers’ perceptions about *emerging training needs* – parameter CURRICULUM DETERMINANTS

<table>
<thead>
<tr>
<th>TOPIC:</th>
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</thead>
<tbody>
<tr>
<td>This table summarises the TAFE design teachers’ perceptions of emerging training needs for the creative industries</td>
</tr>
<tr>
<td></td>
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<tr>
<td>1 More flexible Training Packages that provide training that simulates current and emerging industry practices and is focussed on design and technical multi-skilling</td>
</tr>
<tr>
<td>2 Greater emphasis on creativity, design thinking, processes and methods that extend the inventiveness capacities of the students and technologies</td>
</tr>
<tr>
<td>3 Focus on employment and career planning in response to shift towards greater self-employment – business, project and practice management</td>
</tr>
<tr>
<td>4 Integration of sustainable and energy efficient design practices to develop alternatives to conventional solutions</td>
</tr>
<tr>
<td>5 Focus on local, state and national government and design industry needs</td>
</tr>
<tr>
<td>6 Professional development and training for existing design industry workers – short specialised courses</td>
</tr>
<tr>
<td>7 Increased public awareness of the design industries' profile and contribution</td>
</tr>
<tr>
<td>8 E-media, e-learning and computer literacy/ digital technologies</td>
</tr>
<tr>
<td>9 Employability Skills - generic core skills</td>
</tr>
<tr>
<td>10 Holistic multi-disciplined approach to design practice</td>
</tr>
</tbody>
</table>
4.6.6 The STUDENT QUALITIES parameter

Qualitative analysis of the data pertaining to the ‘STUDENT QUALITIES’ parameter and its constituent variables ‘Selection Process’ and ‘School Leavers’ was consolidated and some of the results are summarised in the two tables below. These findings represent both positive and critical perceptions about the student selection methods, and the attributes of secondary school leavers who apply for courses in the TAFE design education system. To gain entry into TAFE design education programs, applicants usually undergo a selection process due to the high demand for places and to demonstrate that they have achieved the visual communication and other relevant pre-requisite entry requirements. The following two tables overleaf, show the main criticisms and some constructive suggestions regarding the student selection processes. (Refer to the full table listing teachers’ opinions in Appendix 6).
Table: 4.6.6.1 Extract from summary of findings pertaining to teachers’ *criticisms of the student selection process* – parameter STUDENT QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/ INTERPRETATION:</th>
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<tbody>
<tr>
<td>Negative comments</td>
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<td></td>
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<tr>
<td>1 Teachers feel compelled to reach enrolment targets/ quotas and this results in recruitment of less suitable students</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>2 The local selection process is being/ has been replaced by a centralised admissions process</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3 Teachers are not happy with the centralised student selection process</td>
<td>X</td>
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<tr>
<td>4 Applicants’ aptitude, motivation, potential to succeed and attitude are not always at appropriate level and they often lack industry/ career awareness</td>
<td>X</td>
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<tr>
<td>5 There are variations in the selection process in some cases/ locally and nationally</td>
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<td>X</td>
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<tr>
<td>6 Programs that have low levels of demand are easier to get into</td>
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<td>X</td>
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<tr>
<td>7 There are no applicant interviews</td>
<td>X</td>
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<tr>
<td>8 Tertiary ranking scores discriminate against students doing visual arts/design technology subjects</td>
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<td>X</td>
</tr>
</tbody>
</table>

* No data

Table 4.6.6.2 Extract from summary of findings pertaining to teachers’ *positive perceptions about the student selection process* – parameter STUDENT QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/ INTERPRETATION</th>
<th>BH</th>
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<th>LA</th>
<th>LE</th>
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<th>RM*</th>
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</thead>
<tbody>
<tr>
<td>Positive comments</td>
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</tr>
<tr>
<td>1 There is a selection process through a central admissions centre in place</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2 Must have Year 12 for diploma and advanced diploma or Certificate IV/ Year 10 for Certificate programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3 Portfolio specifications are or were in place – drawing using a variety of media, design development depth and presentation qualities, photography and computer graphic skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4 Applicants are required to provide evidence that they meet entry requirements and are motivated</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5 Mature age or applicants employed in the industry are given more generous consideration</td>
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<td>X</td>
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<tr>
<td>6 Applicants still being interviewed</td>
<td>X</td>
<td>X</td>
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<tr>
<td>7 There is a high level of demand/ strong competition to get into programs</td>
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<td>X</td>
</tr>
<tr>
<td>8 Applicants have to demonstrate their passion, potential to succeed, industry awareness and capacity for teamwork</td>
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<td>X</td>
</tr>
<tr>
<td>9 Applicants who completed art/ design foundation programs had better portfolios than school leavers</td>
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<td>X</td>
</tr>
</tbody>
</table>
Table 4.6.6.1 shows the range of main criticisms of the student selection processes shared by design teachers across some of the Institutes, and they include:

1. The need to achieve enrolment quotas and viable class sizes compelled teachers to select less suitable students particularly in areas of lower demand and this undermined the selection process – easier selection. (Listed by 4 Institutes).

2. Selection processes, including portfolio interviews which were implemented locally at the Institute level, are being replaced by centralised admission centre processing based on high school/college results – eliminating portfolio interviews. (Listed by 4 Institutes).

3. The centralised admission centre processing of applications is regarded by some as being a less satisfactory way to select students into design programs. (Listed by 3 Institutes).

4. Some teachers are critical of the poor attitudes and motivation, and lack of industry and career awareness of some students who are selected and offered places in the program by the admissions centre. (Listed by 3 Institutes).

5. There are variations in the selection criteria and processes used in different jurisdictions. (Listed by 2 Institutes).

6. The tertiary ranking scores used in the centralised selection process can discriminate against students who are not studying the more highly scored academic subjects in the lead to completing Year 10 and Year 12. (Listed by 1 Institute).

The main concern is that the centralised selection process, where it is used, removes the teachers’ role in that process and they feel that it is still necessary for teachers to review and interview applicants about their portfolio work in order to make an effective assessment of the applicant’s suitability to enter TAFE design education programs.

These criticisms were not as widely held as some of the positive perceptions about the selection process used in TAFE design education shown in the Table 4.6.6.2 above. In fact, the majority of participants expressed support for the centralised selection process and criteria being used. The State jurisdictions where centralised admissions centres administered student
selection include Victoria, Queensland, South Australia and Western Australia. The main positive teacher perceptions are:

1. There is a selection process administered by central admissions centres and applicants are required to meet entry requirements and selection criteria due to the high demand for places in TAFE design education programs. (Listed by 9 Institutes).

2. Mature age applicants who were employed or had work experience in the relevant design field generally were given more consideration in the assessment of their suitability. (Listed by 5 Institutes).

3. The use of the centralised admission centre process did not prevent teachers from interviewing and counselling applicants and students. (Listed by 5 Institutes).

4. Applicants who completed foundation or portfolio preparation programs presented with a higher quality of sample design work and the standards of school leavers’ portfolio work varied across different high schools. (Listed by 2 Institutes).

The following tables show the extracts of summarised findings in relation to the views of TAFE design teachers about ‘student attributes’ as a constituent variable. Complementary and critical views were expressed on the basis of teachers’ experience when applying selection processes for entry into design programs.
Table 4.6.6.3: Extract from summary of findings pertaining to teachers’ negative perceptions about the school leavers’ attributes – parameter STUDENT QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/ INTERPRETATION</th>
<th>BH</th>
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<th>WA</th>
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</thead>
<tbody>
<tr>
<td>Negative comments</td>
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<tr>
<td>1 They lack maturity; design industry processes/ practice awareness and life experience</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2 They expect to be told what they have to do; are less self-directed; more superficial; looking for easy study options and shortcuts – very results driven passive learners who need instant feedback</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3 They have difficulties with adjusting to studying in TAFE because of the less structured learning settings and industry standard expectations of teachers – lack relevant attributes and sense of purpose and direction</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4 They regard themselves as ‘clients’ whose rights and needs have to be satisfied</td>
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<td></td>
<td>X</td>
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<tr>
<td>5 The capacity to engage with TAFE design programs varies according to which secondary school they attended</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6 They think they are already competent and resent unlearning ‘bad habits’</td>
<td>X</td>
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<td>7 They are unable to identify their own abilities and what they would contribute to the program</td>
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<td>8 Regional school leavers lack adequate communication, research and concept/ ideas development skills</td>
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<td>9 They expect that if they provide the right answers they will pass</td>
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<tr>
<td>10 Majority work part time to support their studies</td>
<td>X</td>
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</table>

Table 4.6.6.4: Extract from summary of findings pertaining to teachers’ positive perceptions about the school leavers’ attributes – parameter STUDENT QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/ INTERPRETATION</th>
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<tbody>
<tr>
<td>Positive comments</td>
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<tr>
<td>1 They are becoming or form the majority of new enrolments into some design programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2 They quickly learn how to adjust once they see and compare what the mature age students produce</td>
<td>X</td>
<td>X</td>
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<tr>
<td>3 Have Year 10 or 12 Certificate with some achievements in maths and English</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>4 Majority enrol in underpinning Certificate level design foundation programs to develop their portfolio</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>5 They are selected into design program on the basis of meeting portfolio entry requirements; demonstrated enthusiasm, aptitude and motivation</td>
<td>X</td>
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<tr>
<td>6 Majority of applicants for Certificate IV programs have Year 12 because they intend to further their studies</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>7 They are more technically knowledgeable, media aware and quickly learn computer skills</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8 Many have a school based art or photography background and do well in design</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>
Table 4.6.6.4 shows the teachers’ concerns about the ‘student attributes’ of some of the school leavers as a class of applicants that is different from mature age applicants. (Mature age applicants are defined as applicants who will turn at least twenty in their first year of enrolment.)

The main criticisms are:

1. School leavers usually lacked awareness of chosen industry practices, maturity, sense of purpose and experience at a level that is required to effectively engage with study in the chosen design field. (Listed by 9 Institutes).
2. School leavers tended to be shallow, results driven and dependent learners that require a very structured approach to teaching and frequent feedback due to their lack of self-direction skills. (Listed by 5 Institutes).
3. Some school leavers have difficulties with adjusting to TAFE study, and are reluctant to take responsibility for their own learning while being aware of their ‘client rights’. (Listed by 6 Institutes).
4. School leavers don’t always recognise their abilities and what they can contribute to the learning of others. (Listed by 1 Institute).

The above views can be compared with some complementary perceptions teachers share about the attributes of school leavers shown in Table 4.6.6.4 above. The main findings are:

1. The participation rate of school leavers in design programs, including design foundation programs, is increasing to form the majority of new students in design programs. (Listed by 8 Institutes).
2. They tend to learn quickly how to adjust to the new TAFE learning environment. (Listed by 5 Institutes).
3. Majority of school leavers have completed Year 12 as they intend to continue their studies in the higher education sector after graduating from TAFE. (Listed by 4 Institutes).
4. They are computer literate and media aware having previous school art and photography backgrounds that assist them to do well in design programs. (Listed by 3 Institutes).

Further detailed research related to school leavers attributes as TAFE design students would need to be carried out to confirm these perceptions.
4.6.7 The TEACHER QUALITIES parameter

In relation to the parameter ‘TEACHER QUALITIES’ and its constituent variables ‘Staff qualifications’ and ‘Innovation leadership’, the data analysis results are presented in the following three tables. There is a very diverse range of both positive and critical views put forward by the teachers in relation to these aspects of the TAFE design education system. Staff qualifications include recruitment selection criteria related to both relevant formal and informal qualifications, as well as substantial practical industry experience.

Table 4.6.7.1 overleaf, is an extract from the summary of findings pertaining to the constituent variable ‘Staff qualifications’. (Refer to the full table listing teachers’ opinions in Appendix 6). The main affirming findings are:

1. A significant proportion of full time and casual TAFE design teachers continue to practice within the relevant design industry field. (Listed by 7 Institutes).
2. Teachers are encouraged to maintain their industry practice and close links with industry. (Listed by 7 Institutes).
3. Recruitment of casual teachers is valued because it brings current industry knowledge and skills that validate and add credibility to TAFE training. (Listed by 7 Institutes).
4. More recently, some new teachers have gained relevant industry experience and higher education qualifications at post graduate levels in the design discipline or education field, or in both fields. (Listed by 5 Institutes).

Table 4.6.7.2 overleaf, is an extract from the summary of negative findings pertaining to the constituent variable ‘Staff qualifications’. (Refer to the full table listing teachers’ opinions in Appendix 6). The main critical findings are:

1. Casual teachers spend less time in the TAFE workplace and often work unsupervised with little contact with other staff members and students – this limits their role; and their main focus is on their career in industry. (Listed by 3 Institutes).
2. There is a high proportion of part-time and casual teachers – need new model of teaching practice with emphasis on mentoring, program planning/review and moderation to achieve required outcomes. (Listed by 3 Institutes).
3. Increasing replacement of fulltime teachers with casual teachers is not improving the quality of the teaching and requires more supervision to maintain standards. (Listed by 2 Institutes).

4. More recently some new teachers have practice experience and higher education post graduate qualifications in the design discipline field and education. (Listed by 2 Institutes).

Table 4.6.7.3, next shows the qualitative analysis results from interview data related to the constituent variable ‘Innovation leadership’. Again, there is a wide diversity of views expressed by the design teachers. (Refer to the full table listing teachers’ opinions in Appendix 6). The main findings are:

1. There are very few fulltime teachers left and they take on leadership, administration and coordination roles-in order to improve staff briefing, coordination, and to anticipate and resolve potential problems. (Listed by 4 Institutes).

2. There is a strong emphasis on creativity and innovation –essence of design practice/ so that graduates represent the future of design. (Listed by 3 Institutes).

3. Teachers see TAFE as a dynamic and evolving learning institution responding to the changes brought about by Training Packages in creative industries, and by the improving state economic development. (Listed by 3 Institutes).

4. Dual sector campus sharing of facilities and teaching staff is being implemented to effectively capitalise on enriching learning opportunities provided by visiting national and international designers, industry competitions and exhibition/ events to stimulate students and teachers. (Listed by 3 Institutes).

Another finding includes moving towards the development and implementation of more online resources to support teaching and learning, however the rate at which this is being achieved varies significantly. From observation, it very much depends on the interest and capacity of the individual teachers to engage with this form of innovation as a special project that can attract external funding.
Table 4.6.7.1: Extract from summary of findings pertaining to teachers’ positive perceptions about teachers’ qualifications – parameter TEACHER QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/INTERPRETATION</th>
<th>The qualifications and attributes of teachers often are that:</th>
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<tr>
<td>Positive comments</td>
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<tr>
<td>1</td>
<td>Some fulltime teachers still practice in the industry</td>
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<td>2</td>
<td>Teachers are encouraged to maintain their industry practice and maintain close industry links</td>
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<td>3</td>
<td>Casual teachers are valued for their current industry knowledge and skills that validate and add credibility to TAFE training</td>
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<td>4</td>
<td>More recently some new teachers have practice experience and higher education post graduate qualifications in the design discipline field and education</td>
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<td>5</td>
<td>Fulltime and casual teachers are encouraged to gain the Cert IV in Training and Assessment</td>
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<td>6</td>
<td>Teachers are aware of changes in industry practices and maintain links to keep up to date</td>
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<td>7</td>
<td>Teachers with higher education backgrounds are more likely to extend students’ learning of generic Employability Skills and contextualise discipline theory / replicate learning philosophy</td>
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<td>8</td>
<td>Casual teachers with prominent industry reputations play a key role in some specialised subject areas</td>
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<td>9</td>
<td>Majority of casual teachers are practicing in the industry</td>
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Table 4.6.7.2: Extract from summary of findings pertaining to teachers’ negative perceptions about teachers’ qualifications – parameter TEACHER QUALITIES

<table>
<thead>
<tr>
<th>TOPIC/INTERPRETATION</th>
<th>The qualifications and attributes of teachers often are that:</th>
<th>BH</th>
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<tbody>
<tr>
<td>Negative comments</td>
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<tr>
<td>1</td>
<td>Casual teachers spend less time in the TAFE workplace and often work unsupervised with little contact with other staff members and students – this limits their role; focus on career in industry</td>
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<td>2</td>
<td>There is a high proportion of part-time and casual teachers – need new model of teaching practice with emphasis on mentoring, program planning/review and moderation to achieve required outcomes</td>
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<td>3</td>
<td>Increasing replacement of fulltime teachers with casual teachers is not improving the quality of the teaching and requires more supervision to maintain standards</td>
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<td>4</td>
<td>Some casual teachers initially need extensive support from fulltime teachers to develop teaching and student management practices – team teaching</td>
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<td>5</td>
<td>Team coordination and mentoring requires increasing amounts of time but does not count towards a teaching load</td>
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<td>6</td>
<td>There is no professional development opportunity to ‘return to industry’ for teachers who have not worked in the industry for a long time</td>
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<td>7</td>
<td>It is difficult and rare to recruit teachers with higher education qualification in their design discipline and in teaching</td>
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<tr>
<td>8</td>
<td>When senior teachers with liberal arts backgrounds leave they are replaced by technically trained industry practitioners focused on technical skills development with little teaching experience</td>
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<tr>
<td>9</td>
<td>New teachers/ former students often rely on their own learning experience to inform their teaching practice</td>
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<td>10</td>
<td>Most TAFE teachers have a poor grasp of theoretical concepts associated with ‘pedagogy’- current training does not prepare them for theory based discussion of teaching and learning processes</td>
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</table>
Table 4.6.7.3: Extract from summary of findings pertaining to teachers’ perceptions about *leadership and innovation* – parameter TEACHER QUALITIES

<table>
<thead>
<tr>
<th>Leadership and innovation</th>
<th>BH</th>
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<th>SW</th>
<th>TT</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 There are very few fulltime teachers left and they take on leadership, administration and coordination roles-improving staff briefing and coordination to anticipate and resolve potential problems</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>2 There is a strong emphasis on creativity and innovation –essence of design practice/ graduates represent the future of design</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>3 Teachers see TAFE as a dynamic and evolving learning institution responding to the changes brought about by Training Packages in creative industries and improving state economic development</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>4 Dual sector campus sharing of facilities and teaching staff to effectively capitalise on enriching learning opportunities provided by visiting national and international designers, competitions and industry exhibition/events to stimulate students and teachers</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>5 Innovation in the form of integrated business management to prepare photography graduates for sustainable self-employment is implemented</td>
<td>X</td>
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<tr>
<td>6 Some teachers are leading the change towards online learning linked to workplace learning making campus based delivery of programs obsolete – reflecting industry practice using ‘virtual teams’ and online collaboration</td>
<td>X</td>
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<tr>
<td>7 Studio leaders are often reputable practitioners who also engage in activities of professional associations, awards and competitions and publications</td>
<td>X</td>
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<tr>
<td>8 Core fulltime teachers also play active roles in peak industry bodies</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>9 Taking lateral approaches to Training Package interpretation to adapt and develop new emerging industry streams</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10 Placing strong emphasis on developing students’ capacity to conduct self and peer assessment and to provide feedback</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>
4.6.8 The TEACHING STRATEGIES parameter

The teaching practices that will be discussed here relate to the range of design disciplines in which the participating Institutes of TAFE provide design education training. The design disciplines are listed in Table 4.6.8.1 below.

Table 4.6.8.1: Design disciplines serviced by the participating TAFE Institutes

<table>
<thead>
<tr>
<th>Graphic design</th>
<th>Film and TV production</th>
<th>Fashion and textile design</th>
<th>Building design and drafting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia design</td>
<td>Stage design and production</td>
<td>Jewellery design</td>
<td>Interior design and decoration</td>
</tr>
<tr>
<td>Photography</td>
<td>Design foundation</td>
<td>Visual arts and crafts</td>
<td>Industrial/ product design</td>
</tr>
</tbody>
</table>

The results of the analysis of data linked to the parameter ‘TEACHING STRATEGIES’ and one of its constituent variables ‘Teaching Practice’ which was selected on the basis of the number of sources and frequency of responses are presented in Table 4.6.8.2 and Table 4.6.8.3 below.

They represent the complementary and critical comments made by TAFE design teachers about their design teaching methods. The analysis identified a number of issues and limitations that appear to indicate a need for further research into the teaching practices and for developing a greater capacity for scholarly discourse among TAFE design teachers about the underpinnings of teaching practices. (Refer to the full table listing teachers’ opinions in Appendix 6).
### Table 4.6.8.2: Extract from summary of findings pertaining to teachers’ positive perceptions about teaching practice – parameter TEACHING STRATEGIES

<table>
<thead>
<tr>
<th>TOPIC/INTERPRETATION:</th>
<th>BH</th>
<th>CO</th>
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<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>These tables summarise the positive comments made by TAFE teachers in relation to design teaching methods and practices.</td>
<td></td>
<td></td>
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<tr>
<td>POSITIVE COMMENTS</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 Teaching is based on holistic studio/ project-based learning principles that simulates design office practice</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Increasingly using formative learning tasks followed by major holistic summative tasks that integrate application of learning outcomes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Striving to achieve a balance between practice and relevant underpinning theory informed by employment destination requirements and delivered by a team of teachers</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 Teachers meet to plan, coordinate and discuss program delivery– team teaching and learning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 There is a trend to increased emphasis on cognitive and conceptual development, research and communication/presentation skills in the programs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Teachers do not see themselves as ‘experts’ and are moving towards a student-centred and shared collaborative learning using students’ life experiences</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Using student-centred/ self-directed negotiated projects in second year with a client focus</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7 Using excursions/ study tours/site visits/ links to develop industry and cultural awareness</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8 Focusing on teaching students to think creatively and not to have preconceived solutions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>

### Table 4.6.8.3: Extract from summary of findings pertaining to teachers’ negative perceptions about teaching practice – parameter TEACHING STRATEGIES

<table>
<thead>
<tr>
<th>TOPIC/INTERPRETATION:</th>
<th>BH</th>
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<th>RM</th>
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<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>These tables summarise the negative comments made by TAFE teachers in relation to design teaching methods and practices.</td>
<td></td>
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<td></td>
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<tr>
<td>NEGATIVE COMMENTS</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 The teaching is predominantly teacher-centred and driven by assessment and compliance requirements – not sound educational principles</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Much of the teaching practice is undisclosed/ unknown and very dependent on the individual teacher (casual and fulltime)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 The quality of design outcomes are not the main focus as training is driven by employment outcomes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4 Integration/ clustering of unit delivery/assessment is too difficult and complex to implement</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Teaching practices are becoming fragmented due to loss of cohesion within teaching teams - more casual teachers; diverse age and experience profiles; lack of interest and opportunities to reflect and discuss teaching methods due to lack of time</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Not enough emphasis on ‘practice management’ in response to increasing reliance on outsourcing and self-employment patterns in the industry</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7 The integration of CAD and computer design methods with concept development is tentative</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8 There is too much emphasis on the visual impact of design and not enough on conceptual thinking, problem solving and writing/ presentation skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
</tbody>
</table>
Table 4.6.8.2 shows the main positive findings about design teaching practice include:

1. Project based learning is used widely in TAFE design education studio settings and it provides a holistic simulation of workplace design office practice. (Listed by all 13 Institutes).

2. There is increasing use of formative learning tasks followed by major holistic summative assessment projects that require students to integrate and apply the knowledge and skills. (Listed by 11 Institutes).

3. Teaching strategies and practice strive to achieve a balance between practical skilling and theoretical knowledge building relevant to industry requirements and often involve team teaching coordination and planning to integrate off campus activities. (Listed by 10 Institutes).

4. There is evidence of change to a student-centred approach to design education as students in final stage of their programs are increasingly given opportunities to negotiate the details of the projects. (Listed by 8 Institutes).

5. There is increased emphasis on design presentation skills and on developing students’ capacity to approach design problem solving creatively through informed decision making underpinned by broad approached to researched problem clarification and investigation. (Listed by 7 Institutes).

One thing that is not clear and requires further research is the need to identify the scope of student projects, including client based projects, and the extent to which they are able to authentically simulate, within the TAFE settings, actual workplace projects and their real constraints. Another area for further study is the effect the change from a teacher-centred to a student-centred approach to design teaching is having on the overall competence and achievements of students.

Table 4.6.8.3 shows some of the main critical findings about TAFE design teaching practice, and include:

1. The perception is that most of the design teaching is teacher-centred and driven by assessment and registration compliance requirements. (Listed by 8 Institutes).
2. Teaching practices of individual teachers, particularly part-time and casual teachers often are not apparent as the scope for monitoring and discourse with other teachers is limited. (Listed by 7 Institutes).

3. The main focus of TAFE design education is on meeting industry skills requirements for employment and not on the quality of design outcomes. (Listed by 6 Institutes).

4. Clustering and integration of units is difficult to implement due to the complexity of teaching and assessment coordination. (Listed by 6 Institutes).

5. Design teaching practices are becoming less consistent and integrated due to loss of cohesion within teaching teams – there are more casual teachers; diverse age and experience profiles; lack of interest and opportunities to reflect about and discuss teaching methods due to a lack of time. (Listed by 5 Institutes).

6. TAFE design education is not responding effectively to the changing nature of employment in the industry that is increasingly reliant on outsourcing and self-employment patterns. (Listed by 5 Institutes).

7. Teaching of computer aided design and drafting (CADD) units in design education practice and student projects tends to be integrated tentatively as the units tend to be regarded as stand-alone units due to their reliance on computer laboratory access. (Listed by 3 Institutes).

8. There is too much emphasis on the visual impact of design projects and not enough on conceptual thinking, problem solving and writing/presentation skills. (Listed by 3 Institutes).

These finding seem to suggest that the increased casualisation of the teaching workforce in TAFE design education is having a significant impact even though casual and part time teachers are often required and encouraged to complete teacher development training. Further research is required to investigate the extent to which mentoring is provided by experienced teachers to this group of teachers, and encourages them to actively reflect and discuss their teaching practice once the teacher training is completed. These findings also reinforce a perception that TAFE design education teaching practices need to be more formally established and recognised. Namely, that they are quite specialised and different from teaching
practices in other TAFE areas, and hence may require specialised facilities that are more suited for the type of learning settings and experiences that foster effective design education.

4.6.9 The WAYS OF LEARNING parameter
The results of the analysis of interview data associated with the parameter ‘WAYS OF LEARNING’ and its constituent variables ‘Project based’ and ‘Reflection’ are presented in Table 4.6.9.1 overleaf. The interview data represents the perceptions of design teachers about the ways of learning students engage with during their design education experience in TAFE. (Refer to the full table listing teachers’ opinions in Appendix 6).

Table 4.6.9.1 overleaf, shows the main approaches to learning being offered to, and engaged with by the students during TAFE design studies are:

- Project based learning. (Listed by all 13 Institutes).
- Reflective learning is taking place to various degrees. (Listed by all 13 Institutes).
- Work based learning on the job is commonly used. (Listed by 10 Institutes)
- Group collaborative learning. (Listed by 9 Institutes).
- Student independent study. (Listed by 7 Institutes).
- Online learning and support. (Listed by 6 Institutes).

Project based learning is well established and developed, as a core practice and way of learning, in the TAFE design education system. This approach aims to simulate authentic workplace tasks and settings to provide a realistic context and learning experience for the students. Interestingly, although teachers said that work placements were not as readily available as before, they still play a significant role in design education that prepares graduated for employment in the design industries. The development of online learning and support in TAFE design education is slow and not widely supported.
Table 4.6.9.1: Extract from summary of findings pertaining to teachers’ perceptions about *types of learning* students engage with – parameter WAYS OF LEARNING

<table>
<thead>
<tr>
<th>TOPIC/ INTERPRETATION:</th>
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</thead>
<tbody>
<tr>
<td>This table shows the types of learning approaches students engage with in TAFE design education.</td>
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<tr>
<td>Type of Learning referred to in interviews</td>
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</tr>
<tr>
<td>1 Project based learning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>2 Reflective learning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3 Work experience/ placement</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4 Group/ collaborative learning</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Student independent study</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6 Online learning/ support</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>
Table 4.6.9.2: Teachers’ views about students use of REFLECTION – parameter WAYS OF LEARNING

| TOPIC/ INTERPRETATION: | Comments about reflective learning – critical or negative, positive or affirming | BH | CO | CR | EM* | GO | HO | LA | LE | MO | RM | SW | TT | WA |
|------------------------|--------------------------------------------------------------------------------|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|
| Reflective learning    |                                                                                  |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
| 1                      | ● Not much opportunity for students to reflect about learning-less than used to be |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
|                        | ● Used to have critiques of assignments/ projects                                |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● It is industry practice to evaluate outcomes of projects - in TAFE too much concern with delivering inputs |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
| 2                      | ● Photography students prepare a reflective report on their work experiences      |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
|                        | ● Students reflect on and critique the works of other photographers              |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Students seek clients’ feedback about the student’s work as part of the reflective report |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Students use teacher’s feedback sheets to reflect on their work and where they need make improvements |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Students reflect on and evaluate the program delivery to provide feedback to teachers |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
| 3                      | ● Students reflect on and evaluate the program delivery to provide feedback to teachers |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
| 4                      | ● Students are enthusiastic about talking about their work all the time           |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
|                        | ● Students reflect on and evaluate the program delivery to provide feedback to teachers |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Due to the rush to get through content students miss out on reflection and sense making |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
| 5                      | ● Students reflect on how they managed customer relationship in client based projects |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
|                        | ● Students are encouraged to keep a journal/ BLOG to record their reflections on their design process |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Although it is compulsory some students don’t like reflection-reflective students are more successful |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Reflection seen as a ‘scaffolding’ supporting learning                          |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Students participate in forums where student work is discussed; self/peer evaluated to explain what they did and why they did it-debriefing critique not assessment-helps them to understand design decision making processes |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Final closure on a project                                                      |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Time constraints often work against good reflection                            |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
| 6                      | ● Teachers build in as many experiences as possible and sometimes students feel like they’ve been thrown in at the deep end-but we provide safety nets and after a while they overcome those feelings |    |    |    |     |    |    |    |    |    |    |    |    |    | X  |
|                        | ● Self and peer evaluation is a strong feature of the training and they have to review what they are learning and their practices |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Student’s comfort with doing that reflective review depends on where they are at-we don’t force it |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Reflective learning is essential-they find out about themselves and compare with others; develops their personal values and criteria for objective and subjective analysis/ judgements |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● The unit ‘The Reception of Art’ challenges students to reflect on how they receive art and how it impacts on their work; forces them to look outside of themselves and to make links with different contexts and that is important, enjoyable |    |    |    |     |    |    |    |    |    |    |    |    |    |    |
|                        | ● Reflection enables them to contextualise their own work in relation to contemporary peers, other studio practices and historical contexts |    |    |    |     |    |    |    |    |    |    |    |    |    |    |

* No Data - Enmore
| TOPIC/ INTERPRETATION: Comments about reflective learning | BH | CO | CR | EM | GO | HO | LA | LLE | MO | RM | SW | TT | WA |
|----------------------------------------------------------|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|
| 7  ● Students reflect on and evaluate the program delivery to provide feedback to teachers  
    ● When developing briefs teachers consider the changes to house plans/ space usage and rooms under pressure due to changing life styles and technology innovation  
    ● Students explore these design aspects and reflect on their own life styles/ changes that are occurring in the home |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
| 8  ● Students undertaking work placement have to provide a formal report on the type of tasks and the hours they worked on those tasks-no reflection  
    ● Teachers rely on their industry experiences to explore contemporary set design with students  
    ● Student produce a reflective report on the roles, design processes and required skills of designers  
    ● Students reflect on the stage set production outcomes in terms of how closely they worked with the concept developed by others  
    ● Student are encouraged to keep a visual diary  
    ● We’d like to spend more time on reflection but we’re churning through stuff to get through-we could do a debrief in the last week |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
| 9  ● In a teaching/ learning environment it takes a while for people to reflect and understand what they are learning  
    ● We encourage reflection by teachers and students because it is important to take stock/ assists with problem solving-we’re on a merry-go-round and it spins ever faster  
    ● Students are required to keep a project file  
    ● Participants in the industry mentor program keep a diary and share/ compare their experiences with others  
    ● We probably don’t focus on reflection as well as we could and we should include it as a part of time management planning  
    ● We don’t spend enough time coaching students to manage their stress/ to persist and not give up and the idea of having ‘time for reflection’ would partly address that |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
| 10 ● Conduct mid semester reviews with the students to reflect on the progress of individuals-things start to make sense  
    ● Students are engaged in evaluation of current design products-why they like/ dislike them and then develop alternative solutions to the problem- they have to think about what they are looking at and record their thoughts in a ‘research book’  
    ● Storage space is provided for students to keep all their projects-they pull them out and review them-for some it is a transforming experience because they start to understand why they did what they did and how they did it |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
| 11 ● Students reflect on and evaluate the program delivery to provide feedback to teachers  
    ● Industry and clients also provide feedback about program outcomes |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
| 12 ● The new TP based program requires students to reflect on their own design processes  
    ● Student collect their work/drawings to show their journey in a visual diary  
    ● Teachers have developed a software program that assist them to sit with a student and review the work and record the feedback/ observations/ reflections  
    ● Students reflect on and evaluate the program delivery to provide feedback to teachers |    |    |    |    |    |    |    |     |    |    |    |    |    | X |
Table 4.6.9.2 above, shows the summarised views of the teachers in relation to the constituent variable ‘Reflection’, as a form of learning students and teachers engage with, during the TAFE design education program. The majority of the views expressed are affirming of the value of reflective learning and practice in TAFE design education. Some of the concerns have been highlighted in red in the table. All the participating institutes, with the exception of Enmore Design Centre, provided data.

For the purposes of this thesis, ‘reflection’ was considered from three main considerations:

1. From the point of student reflection on their learning and practices during their design education
2. From the point of view of providing student feedback about their level of satisfaction with their design education experience, and
3. From the point of view of teachers reflecting about their teaching practice

Most of the findings presented and discussed here relate predominantly in relation to the noted first consideration.

Students engage in reflection when:

- They report on their work placement experience.
- They engage in providing feedback to others during critique sessions.
- They review and critically analyse existing products and their project work and its outcomes.
- They research and contemplate influences on their design processes and the designs they are developing.
- They attempt to contextualise their work within contemporary design practice.
- They maintain a project file or a visual diary.
- Then participate in mid semester reviews of study progress.
- They provide feedback to teachers about the program delivery and their learning experiences.

Some of the concerns teachers identified in relation to ‘reflection’ are:

- Not enough opportunities to reflect as predominantly focussed on delivering content inputs and outcomes.
- Not enough time in the program to allocate time for reflection.
Some students do not feel comfortable with engaging in the reflection process, as for them it takes time to gain the confidence to reflect and form opinions.

There is insufficient focus on reflection, and coaching provided to students in order to improve reflective practice as well as stress management.

(Refer to the full table listing teachers’ opinions in Appendix 6).

Reportedly, students who engage in reflective learning and practices apparently are more successful in their design education.

4.6.10 The ASSESSMENT parameter

The analysis of data associated with the parameter ‘ASSESSMENT’, and its constituent variables, produced results that reflect the range of variations identified by the design teachers in the way competency based assessment (CBA) is implemented in the TAFE design education system. The summaries of findings are shown in the Table 4.6.10.1 below. In some cases, empirical, interview evidence was not obtained and the symbol ‘—’ to indicate this is used. Some State jurisdictions do not permit the use of graded assessment and this is indicated by the symbol ‘N’. (See Appendix 6 for detailed results that contain teachers’ positive and negative views about assessment practices for each participating TAFE Institute).

One of the core underpinning principles in the reformed TAFE system is that training and assessment is to be competency based and referenced to relevant performance criteria that describe each element of the competence. These findings show that the competency based approach to assessment has been implemented in the context of non-Training Package and training Package based design education programs. Assessment practices highlighted include both informal and formal formative as well as summative assessment. There is a distinction drawn between the two forms of assessment. The role of formative assessment is to provide feedback to students while they are learning and developing the required competency outcomes whereas the role of summative assessment is to test and provide feedback about the student’s performance provided as evidence of the achieved competence.

Table 4.6.10.1 overleaf, shows the distribution of the various forms of competency based assessment being used in the TAFE design education system, including:
• Formal and informal formative assessment
• Ungraded and graded competency assessment
• Provision of feedback to students
• Workplace assessment of on the job learning.
• Recognition of prior learning (RPL)
• Student self and peer assessment
• Formal summative assessment, and
• Assessment validation.
Table 4.6.10.1: Summary of identified prevalence and variations in assessment practices – parameter ASSESSMENT

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Table 4.6.10.1: Summary of identified prevalence and variations in assessment practices – parameter ASSESSMENT continued….

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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 By design industry/ practitioners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2 By other means – competitions/awards/exhibitions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
</tbody>
</table>

GRADED ASSESSMENT BASED ON QUANTITY AND COMPLEXITY
GRADED ASSESSMENT BASED ON QUALITY
GRADED ASSESSMENT BASED ON QUANTITY/COMPLEXITY AND QUALITY

- No data
N Not permitted
From Table 4.6.10.1, the main findings are:

- The majority of formal and informal formative and summative assessment is ungraded, particularly in those jurisdictions where graded assessment is officially not permitted.
- The introduction of CBA continues to be debated among TAFE design teachers, as discussed previously. There is evidence that graded criterion referenced assessment is also being used in formative and summative assessments.
- Where team teaching practices are commonly used assessment practices are also coordinated and moderated internally and sometimes also externally when industry representatives or clients are invited to participate in the assessment process.
- Feedback to students during formative and summative assessment is provided orally, however there is increasingly a requirement to provide formal written feedback.
- The incidence of workplace assessment is increasing as more emphasis is being placed on provision of design education in the workplace when a student is employed in the industry or undertaking work placement to gain experience.
- The level of demand for recognition of prior learning (RPL) to gain advanced standing and exemptions is increasing while some Institutes have noted a decline in the extent of the recognition given to students transferring from programs offered by other providers.
- CBA practices used in TAFE have a bearing on articulation and the level of recognition given to TAFE graduates who seek to continue their studies in the higher education sector. In some instances previously agreed recognition for completed TAFE design studies has been downgraded.
- Self and peer assessment conducted by students is being implemented and is largely initiated by the teachers as students appear to be reluctant to assess their peers’ or their own work.
- There is a high level of assessment validation being provided by industry practitioners however, some Institutes also seek validation through students’ participation in design competitions, awards and public exhibitions.

Apart from the perceived philosophical incompatibility of an assessment approach that favours standardisation in an area of education that always strives to develop students’ creativity,
originality and non-standard responses to design problems, one of the main criticisms of CBA and ungraded assessment is that it does not appear to recognise the differences in the quality of the competent design work. It is suggested by teachers that students and employers would prefer graded assessment and that ungraded assessment serves as a disincentive for students to strive for excellence in their performance as designers in training. This issue would need to be further explored in the context of the TAFE design education system to identify and define suitable criteria for wider adoption as they currently tend to be developed and used locally.

Where graded CBA is used there are some variations in the way it is applied in practice. In some instances grading is based on the notion of the increased quantity and complexity of the work students are required to complete to achieve a higher grade. An alternative approach is based on the assessment of the quality of the performance and work the student achieves when demonstrating competence. There are also instances where a combination of all of the above is used to determine the grading result.

Further research exploring students’ reluctance to self-assess their own work or critically review the work of peers would assist with developing appropriate encouragements and strategies that would enable students to develop this important capacity very quickly. As future employees in design studios they may well have to rely on this ability throughout their career.

4.6.11 The GRADUATE ATTRIBUTES parameter

The main findings of the qualitative analysis of the data describing the positive and critical views of teachers’ that are relevant to this parameter, and its constituent variables ‘Design Skills’ and ‘Employability Skills’, are presented and discussed here. Table 4.6.11.1 below contains an extract of the summaries of positive views, and the Table 4.6.11.2 includes a summary of critical views about TAFE design education graduates’ attributes. (Refer to Appendix 6 for the complete tables of results).
Table 4.6.11.1: Extract from summary of findings pertaining to teachers’ positive perceptions about graduates’ employability and design skills – parameter GRADUATE ATTRIBUTES

<table>
<thead>
<tr>
<th>TOPIC:</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
<th>EM</th>
<th>GO</th>
<th>HO</th>
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<th>MO</th>
<th>RM</th>
<th>SW</th>
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</thead>
<tbody>
<tr>
<td><strong>POSITVE</strong></td>
<td></td>
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</tr>
<tr>
<td>1 Generally demonstrate Employability Skills in the context of workplace culture</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2 Employ conceptual, technical and professional practice skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Use effective design presentation and justification skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4 Apply problem solving skills to develop and produce design concepts and project documentation under minimal supervision</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5 Demonstrate effective productivity in the workplace due to the range of technical skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6 Demonstrate contextual design knowledge, broadminded creative thinking, design processes and methods</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7 Practice self-assessment</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8 Apply a multi-disciplined collaborative approach to design</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Some successfully compete in design competitions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Creatively extend applications of design software</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

Table 4.6.11.2: Extract from summary of findings pertaining to teachers’ negative perceptions about graduates’ employability and design skills – parameter GRADUATE ATTRIBUTES

<table>
<thead>
<tr>
<th>TOPIC:</th>
<th>BH</th>
<th>CO</th>
<th>CR</th>
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<tbody>
<tr>
<td><strong>NEGATIVE</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>1 Employment opportunities for Certificate IV graduates are limited</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Graduates need to improve creative thinking and design skills. Current design training is focused mainly on technical application/ production/ documentation skills</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Graduates need improved Employability Skills on the job</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Graduates need to improve capacity for teamwork collaboration</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5 There will always be a gap between graduates’ experience in TAFE and the workplace expectations due to limits on workplace simulation using studio-based learning</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>6 There are insufficient product design graduates to grow the industry in Australia</td>
<td>X</td>
<td></td>
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<td></td>
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</table>
Table 4.6.11.1 above, shows that although the opinions among the TAFE design teachers were extensive and varied, some of the main shared positive views can be summarised in the following manner:

1. Graduates possessed well developed generic Employability Skills which they applied within the cultural context of their workplace. (Listed by 9 Institutes).
2. Graduates were ready to effectively use their conceptual, technical and professional practice skills as productive employees. (Listed by 9 Institutes).
3. Graduates were capable to effectively present and defend their design solutions. (Listed by 9 Institutes).
4. Graduates were ready to perform design and documentation tasks under minimal supervision in the workplace. (Listed by 9 Institutes).
5. Graduates were ready to apply extensive knowledge, creative thinking and design methods during the design process. (Listed by 8 Institutes).
6. Graduates were able to evaluate their own work and their contribution to teamwork. (Listed by 7 Institutes).
7. Some graduates gained recognition for their achievements by successfully competing and receiving awards. (Listed by 7 Institutes).
8. Some graduates were capable of creatively extending application of design and documentation software. (Listed by 6 Institutes).

Similarly, Table 4.6.11.2 above, shows some shared criticisms of graduates attributes also emerged from the data analysis and can be summarised in the following manner:

1. Graduates who complete one year of TAFE design education, (up to Certificate IV level), usually were not ready for productive employment in the design industry sector as there were limited employment opportunities at that level. (Listed by 8 Institutes).
2. Graduates’ creative thinking and design skills are not as well developed as their practical technical and production skills. (Listed by 6 Institutes).
3. Graduates need to improve their workplace communication and collaboration skills. (Listed by 2 Institutes).
4. Graduates will always encounter a gap between their experience in TAFE and the workplace expectations of employers. (Listed by 1 Institute).

5. Graduate numbers need to be increased in the industrial and product design sector to maintain growth of the sector. (Listed by 1 Institute).

Although TAFE design graduates find employment, these results appear to indicate that the TAFE design education system and students need to invest additional time to develop the desirable graduate attributes up to the required level to meet the increasingly sophisticated challenges of current and emerging design practice. Further research to obtain data focused specifically on the experiences and feedback from TAFE design education graduates and their employers would need to be carried out to confirm if these views are justified. Current graduate and employer surveys conducted at the State and national levels collect data that is more generic in nature to establish the respective levels of satisfaction. It was also suggested by the teacher stakeholders, that the graduates of the TAFE design education system can play an important role in support of design professionals and in influencing the public’s perception about the role designers play in everyday lives in our communities.
5. SUMMARY OF FINDINGS AND CONCLUSIONS

5.1 PREAMBLE
In this thesis, an in-depth study of design education in the TAFE sector in Australia has been carried out from a theoretical and experimental basis. Particular attention has been directed to establishing a model of this system with respect to the views, aspirations and criticisms of the teacher stakeholders. It has been shown that the views of these stakeholders are influential factors that affect the current, and future, design and operation of the noted TAFE design education system. This, as previously explained, is with all due respect to the potential influences of the other stakeholders, (i.e., the students, design industry, TAFE system administrators, governments and other community interests, etc.), whose views will need to be researched in the future in order to develop a more comprehensive and inclusive model of this system.

Nevertheless, the views and aspirations of the teachers have been found to be critically important, as might be expected from professional and ethical viewpoints, in identifying the significant parameters (and related constituent variables) of the education system. While it has been acknowledged that this investigation is not inclusive, since it does not include the views of the other stakeholders, it is proposed that it still constitutes a reasonably wide and substantial analysis and modelling of the system since design teachers (along with the students) form fundamental elements of such systems. The notable findings documented in this thesis will now be briefly reviewed and their importance discussed, bearing in mind that these findings are reported in detail in Chapter 4 and in the Appendices. The format adopted hereunder is consistent with the noted layout of the various chapters of the thesis beginning with the Literature and Information Search.

5.2 LITERATURE SURVEY AND INFORMATION SEARCH
From the critical review of the literature, notable findings include the following positive aspects.

- Important general policies and directions, that set the agenda and operational context of the TAFE design education system and apply at a macro level of the system, have been developed and are being implemented.
• Nationally endorsed Training Packages that describe the relevant units of competency and related standards and performance criteria, have been developed and are also being implemented in the design education areas.

• There is growing recognition of the important role generic core competencies, such as the Employability Skills, play in education and the workplace, and their essential supportive role in design thinking and processes.

• Pedagogy in the vocational education and training sector is moving towards a more flexible and student-centred approach and this has implications for the roles and practices of the teachers.

However, it is also found that there is a lack of substantial empirical data related to the following aspect:

• Few studies have investigated in detail the inputs, in terms of the views, aspirations and criticisms of the design teachers: as explained, this is a fundamental research issue, which required investigation in the context of this thesis.

It has been shown that further research was urgently needed with respect to investigating these inputs from the viewpoint of teacher stakeholders. The reason for this is to identify, from appropriate experimental investigations, the parameters and related variables, which may affect the design and operations of a TAFE design education system. Of course, similar remarks apply to investigating the needs and aspirations of the other stakeholders as will be discussed later below.

In relation to the nature of design thinking, design processes and underpinning theories, a number of models of the design process have been examined and found to be similar with some variations in detail. It is found that it is possible to adapt a selected model of the design process and use this, at least in general terms, to describe typical development phases in the TAFE design education system, all in the context of a systems design/engineering context. Another interesting finding is that reflective practice is potentially consistent with the teaching and learning activities associated with design education in TAFE project based learning. That is, students develop design skills and construct their knowledge over the period of time during
which they engage with the design process. As this occurs, they move from being novices towards being proficient in design practice. The empirical data have also indicated that design teachers, in general favour this interpretation of design learning and practice, and this had led to some conflict with the competency-based approach. Relatedly, it is apparent that there is ongoing debate about the suitability of the competency-based standards applied within design education. This is in keeping with a recent study of competency-based standards generally [71].

5.3 RESEARCH METHODS AND THEORETICAL DEVELOPMENT

One of the problems with research conducted to date in the area of design education, (as mentioned by Middleton), has been that the approaches taken have predominantly been focussed on quantitative aspects, and have not been necessarily appropriate to finding out how teachers teach design to students, or what their perceptions of the TAFE design education system were. Consequently, there has been an urgent need to develop more appropriate methods to investigate these questions in order to more clearly understand how new ways of design teaching and learning might be developed, and subsequently, how the TAFE design education system may be improved. It is clear that there is a need to undertake research at the TAFE Institute level to identify important parameters, and their constituent variables, that describe the TAFE design education system, and which could be used by system designers, managers and teacher stakeholders to inform and possibly improve the education system.

A review of the literature on systems design and systems engineering has also assisted the writer in formulating a systematic research strategy for modelling and analysing the education system in terms of the relevant design parameters and variables (as explained earlier in Chapter3). As a result of this study, it is found that the pragmatic systems design approach, together with one-on-one and focus group interviews used here, (based on grounded theory), has yielded a large data base about the views, aspirations and criticisms of design education practice from the influential teacher stakeholders’ perspective. These data, which have also been analysed from positive, negative and neutral connotations, have been analysed using

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180 Cartledge, D. and Watson, M., (2008), Creating place: design education as vocational education and training, NCVER, Adelaide SA
computer based qualitative data analysis tools to provide a clearer picture of the system and the related issues that preoccupy the stakeholders’ thinking.

5.3.1 A preliminary model of the TAFE design education system
Recall, from Figure 3.2.2 Chapter 3.2, that a preliminary model of the TAFE design education system was formulated based on the literature and information search, and the writers’ practical knowledge of such systems – note, below, the five (5) parameters and twenty (20) constituent variables proposed in this initial model of the system.

Figure 3.2.2: Schematic diagram of proposed initial parametric model generated using NVivo software showing tree nodes parents and children
This was described by the writer as a theoretical parametric model of the noted TAFE design education system, which provided a logical starting point, subject to the results and findings of the empirical investigation described in Chapter 4. As noted, this was expanded and populated with additional empirically determined parameters and variables with particular respect to the input from the representative sample of design teachers. It is proposed that this updated model, depicted again later, will provide a useful foundation in the future analysis and synthesis of TAFE design education systems, especially when the input from other noted stakeholders are taken into account in future research.

5.3.2 Comment on the research methodology

As generally realised, qualitative research involving one-on-one and focus group interviews can be problematic in arriving at a reasonably accurate understanding of the views, aspirations and criticisms of design teachers. The writer has found that the use of the pragmatic approach and grounded theory, (supported by a number of research papers on this matter), have paved the way for a relatively straight forward, and rigorous investigation of the views of the noted stakeholders. This research methodology has been described in detail in Chapter 3 of this thesis.

5.4 EXPERIMENTAL PROGRAM

5.4.1 Collection and analysis of empirical results

An in-depth experimental program has been carried out over thirteen (13) publicly funded TAFE Institutes in Australia. Fifty seven (57) TAFE design education practitioners working in those Institutes participated in this investigation - recall the list of structured and open ended questions that were put to teachers in the following Institutes (Table 3.5.1):
Table 3.5.1 List of participating TAFE Institutes and interview participants

<table>
<thead>
<tr>
<th>STATE</th>
<th>TAFE INSTITUTES</th>
<th>NUMBER OF PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>NSW</td>
<td>Sydney Institute of TAFE – Enmore Design Centre</td>
</tr>
<tr>
<td>2.</td>
<td>VIC</td>
<td>Gordon Institute of TAFE</td>
</tr>
<tr>
<td>3.</td>
<td>VIC</td>
<td>Swinburne University of Technology – TAFE Division</td>
</tr>
<tr>
<td>4.</td>
<td>VIC</td>
<td>Box Hill Institute of TAFE</td>
</tr>
<tr>
<td>5.</td>
<td>TAS</td>
<td>Institute of TAFE Tasmania - Launceston</td>
</tr>
<tr>
<td>6.</td>
<td>TAS</td>
<td>Institute of TAFE Tasmania - Hobart</td>
</tr>
<tr>
<td>7.</td>
<td>QLD</td>
<td>Southbank Institute of TAFE – Morningside Campus</td>
</tr>
<tr>
<td>8.</td>
<td>QLD</td>
<td>Sunshine Coast Institute of TAFE – Cooloola Campus</td>
</tr>
<tr>
<td>9.</td>
<td>WA</td>
<td>Central TAFE – Perth City Campus</td>
</tr>
<tr>
<td>10.</td>
<td>WA</td>
<td>Central TAFE – Leederville Campus</td>
</tr>
<tr>
<td>11.</td>
<td>SA</td>
<td>SA TAFE - Croydon Park</td>
</tr>
<tr>
<td>12.</td>
<td>SA</td>
<td>SA TAFE - Tea Tree Gully Campus</td>
</tr>
<tr>
<td>13.</td>
<td>VIC</td>
<td>RMIT – TAFE Division</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>

In view of the quantity of empirical data generated from these interviews, it has been necessary to use qualitative data analysis software, (NVivo and Leximancer), together with the noted recursive parsing technique, in order to properly interrogate these data with respect to the views, aspirations and criticisms of the noted stakeholders. The application of these tools and techniques has facilitated the classification of these data into logical groups, which correspond to the important parameters and constituent variables found to comprehensively describe the noted TAFE design education system.

While analysis of these data has been challenging and time consuming, a substantial database is now available, (in the Appendices of this thesis), to design teachers, TAFE administrators, researchers and other interested parties. This database provides a useful representative understanding of how design teachers perceive a TAFE design education system, particularly with respect to the positive, (desirable), and negative (criticisms). Hence, it may be deployed in future studies of such systems.

5.4.2 Comment on the final model of TAFE design education system

As described in Chapter 4.2, it has been possible, through the analysis of the noted empirical data, to develop a refined model of the TAFE design education system investigated which is based on thirteen (13) parameters and eighty six (86) associated constituent variables – this is
reproduced in Figure 4.2.6, overleaf. Comparing this model to the initial or preliminary one noted above, it will be seen that there are now 13 parameters, and eighty-six (86) constituent variables – this reflects the power of the empirical investigation in identifying parameters of importance that may not be immediately apparent from a theoretical viewpoint.

Notwithstanding that this model is not completely inclusive in terms of all the stakeholders that may be involved, nevertheless, it still provides a novel representation in the TAFE design education system, as perceived by the teacher stakeholders. It is proposed that this model identifies parameters and variables that form essential considerations, and may provide a useful basis to be considered during the system design and development process, in relation to TAFE design education systems.
Figure 4.2.6: Schematic, parametric model of the noted TAFE design education system
5.4.3 Additional comments on the significance of empirical data found in this investigation

The empirical data presented in Chapter 4 (and documented fully in Appendix 3), have been presented essentially in two groups.

1. Representative examples (see Chapter 4.7) were presented of the results of recursive parsing with respect to all of the important parameters and variables. This selection was informed by applying the Pareto Principle - recall that this selection was based on the assumption that the most commonly occurring references represented the most important parameters and variables in keeping with the perceptions of the teacher stakeholders. It is proposed that this is a reasonable assumption affecting the interpretation of these data, which is consistent with the relevant preoccupations of the teachers, as well as with the analytical mechanics of NVivo software. Detailed findings regarding these perceptions are listed in Chapter 4, and will not be repeated again here. Suffice to say, that the relatively important aspects of the TAFE education system have been identified and tabulated against the noted parameters and constituent variables.

2. In Chapter 4, the results of the recursive parsing and analysis of the data have been summarised in the form of consolidated tables. These tables present a novel picture of the perceptions of the design teachers from the noted TAFE institutions – note that the summary tables have been applied to all the parameters.

It is recommended that the final parametric model of the TAFE system in noted in Figure 4.2.6 (and also in its NVivo format), together with the substantial database in the Appendices, represent a holistic and pragmatic starting point deployable in future studies of TAFE design education systems.

5.5 REVIEW OF FINDINGS IN RELATION TO ORIGINAL AIMS

Recall that the overall goal of this thesis was to apply a systems design approach to model and achieve an in-depth understanding of the Australian TAFE design education system from the point of view of the design teachers serving in the publically funded system. The specific aims are as follows:
6. To undertake a critical review of the literature covered by current research regarding practices related to Australian publically funded TAFE design education processes and outcomes. A critical review of the relevant literature regarding practices in Australian TAFE design education institutions has been carried out as noted above. When published, this review will add useful information to the body of knowledge already existing in this area.

7. From the analysis of the data in (1), to gain a better understanding what investigations are required with respect to curriculum design, teaching, learning and assessment practices and other related issues. And to develop an understanding of the main parameters and variables describing the current TAFE design education system in Australia. In the light of the substantial empirical data base established by this investigation, a better understanding has been developed with respect to the current practices associated with curriculum development, teaching and learning as well as assessment within the TAFE design education system. Through this investigation, important findings about fundamental parameters and variables that model the TAFE design education system have been identified and interpreted with respect to the perceptions of the teacher stakeholders.

8. As informed by the results of (2), to develop a parametric model of the TAFE system and parameters including: curriculum design, teaching and learning, and assessment practices. As noted, a parametric model has been developed for the TAFE design education system with the noted parameters and variables. This model has been populated from data obtained from the empirical investigation obtained as part of the next aim.

9. Mindful of the results in (2) and (3), to undertake an experimental program in order to obtain empirical data relevant to the parameters of a TAFE design education system. Further, to analyse these data and update the preliminary parametric system model noted in (3); and to summarise the findings in the light of the views and aspirations of the teacher stakeholders.
The theoretical basis and the approach to the experimental method for this study has been developed and carried out as described in detail in Chapter 3. The results of the qualitative data analysis led to the development of the noted parametric model, by the addition of other important parameters and variables, namely: ATTITUDES; STAKEHOLDERS; CURRICULUM DETERMINANTS; STUDENT QUALITIES and TEACHER QUALITIES (as a refinement of STUDENT AND STAFF SELECTION); TEACHING STRATEGIES and WAYS OF LEARNING (as a refinement of PROGRAM DELIVERY); GRADUATE ATTRIBUTES and ISSUES. Two virtual parameters have also been found, namely SUGGESTIONS and GOOD QUOTES that represent design teachers’ constructive inputs for improvements to the system, and notable views about the system.

10. To summarise findings and conclusions for design education in the Australian TAFE system; and outline opportunities for further research.

Summaries of the consolidated analysis of the qualitative data have been developed with respect to all the identified parameters and important selected variables. The data base resulting from this research is given in the appendices. Although the above aims have been achieved in large part, it is also apparent that more research is required in the future as mentioned below in this concluding comment.

5.6 CONCLUDING REMARKS AND RECOMMENDATIONS

5.6.1 Key findings and needs

In view of the detailed data and analysis results obtained from this study, briefly listed here are some of the key teacher aspirations and needs identified by this research with respect to each of the important parameters.

In relation to the parameter ATTITUDES the major findings are that:

4. Although the national Training reforms has been the dominating factor, as the control of the curriculum and program delivery is still with the State Governments, there is a need for greater consistency in the design training provided. (Listed by all 13 Institutes).
5. There is a need to retrain or replace a maturing workforce that is struggling to keep up with technological and system changes, and is due to retire within a short period of time. (Listed by 8 Institutes).

With respect to the parameter ISSUES key findings include:

6. The need to reduce the impact of increasing non-teaching workload that is impacting on teachers’ ability to engage effectively with teaching. (Listed by 8 Institutes).

7. The need to investigate the impact of the introduction of competency based training and assessment - together with attendant Training Package based curriculum - into the creative industries/ design education areas, and on study and articulation pathways to the higher education sector as well as skills/knowledge recognition processes. (Listed by 7 Institutes).

Regarding the parameter SUGGESTIONS significant findings are that:

8. There is a need to provide more design foundation programs for younger school leavers (Year 10 and 11) who enrol in TAFE design education. (Listed by 5 Institutes).

9. There is a need to review the information communication strategies and formats used to present to students the learning and assessment requirements in unit outlines. (Listed by 5 Institutes).

10. Consideration should be given to allow the use of graded competency assessment where it is appropriate to do so. (Listed by 5 Institutes).

Although this was not frequently identified, logically another important suggestion includes:

4. The need for increased research into emerging design related occupations, employment and career opportunities arising from emerging technological and regulatory changes in the building and other creative industries, and the need to develop relevant training. (Listed by 2 Institutes).
Important finding in relation to the parameter CURRICULUM DESIGN include:

3. That where diploma/advanced diploma level design programs existed before the introduction of Training Packages, the scope to offer these qualifications at this level should be retained, particularly when the relevant Training Package did not extend to this level of qualification. (Listed by 6 Institutes).

4. The role and importance of design competency standards endorsed at the state level, relative to the national standards, should be investigated to clarify any inconsistencies. (Refer to Appendix 6).

5. There is a need for continuing discourse among teachers to vent views relevant to the changeover to Training Package based curriculum and competency based teaching and assessment. (Listed by 6 Institutes).

6. There is a need to ensure that accredited non-Training Package based curricula do not become outdated due to the continuing granting of accreditation extensions. (Listed by 4 Institutes).

7. There is a need to ensure that Training Package outcomes reflect a holistic and rounded design education approach. (Listed by 3 Institutes).

6. There was a need to include a greater focus on developing relevant design and practice management business skills in some creative industry Training Packages to better meet the students’ and industry practitioners’ expectations. (Listed by 4 Institutes).

Similarly, in relation to the very important parameter CURRICULUM DETERMINANTS regarding teachers’ perceptions of industry, student and emerging training needs, the key finding are:

4. That TAFE graduates, in addition to the relevant design and technical skilling, also need to be trained to be competent in the core underpinning Employability Skills and possess well developed desirable attributes. (Listed by 9 Institutes).

5. There is a need to make TAFE design education provide authentic workplace experiences through workplace simulation that reflect industry tasks in studio settings, or through work placements mentoring in industry. (Listed by 6 Institutes).
6. There is a need to integrate sustainable and energy efficient design practices into design education. (Listed by 5 Institutes).

7. There is a need to ensure that there is sufficient time and resources allocated to adequately prepare graduates for employment up to diploma and advanced diploma levels, as the employment opportunities in the design industries for one year trained graduates are very limited. (Listed by 4 Institutes).

8. There is a need to integrate and develop business/practice and project management; market research and marketing skills for those design sectors where workers are predominantly self-employed/freelance practitioners. (Listed by 4 Institutes).

9. There is a need to expansion professional development and training for existing design industry workers. (Listed by 3 Institutes).

For the parameter STUDENT QUALITIES the design teachers would like to see greater emphasis being placed on:

5. Developing greater awareness of the industry career opportunities and practices within the secondary school system. (Listed by 9 Institutes).

6. Providing school leavers with orientation and study support strategies during their adjustment to TAFE study. (Listed by 6 Institutes).

Similarly, for the parameter TEACHER QUALITIES the teachers said that:

5. Due to the high proportion of part-time and casual teachers there is a need to develop a new model of teaching practice which emphasises teacher mentoring, program planning/review and assessment moderation to achieve required outcomes. (Listed by 3 Institutes).

6. There is a need to maintain a more balanced ratio of fulltime teacher recruitment to provide leadership and innovation, and to ensure the quality of the teaching and supervision to maintain is adequate to meet required standards. (Listed by 2 Institutes).
Recall that the participating TAFE Institutes deliver design education in a diverse range of design disciplines listed in the table below, but this does not exclude other disciplines that may be included in other parts of Australia.

**Table 4.6.8.1: Design disciplines serviced by the participating TAFE Institutes**

<table>
<thead>
<tr>
<th>Design discipline</th>
<th>Design discipline</th>
<th>Design discipline</th>
<th>Design discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic design</td>
<td>Film and TV production</td>
<td>Fashion and textile design</td>
<td>Building design and drafting</td>
</tr>
<tr>
<td>Multimedia design</td>
<td>Stage design and production</td>
<td>Jewellery design</td>
<td>Interior design and decoration</td>
</tr>
<tr>
<td>Photography</td>
<td>Design foundation</td>
<td>Visual arts and crafts</td>
<td>Industrial/ product design</td>
</tr>
</tbody>
</table>

Teachers working in these disciplines employ a range of teaching and learning strategies. Although there are some positive findings, as detailed and discussed in Chapter 4, there are also some critical comments in relation to teaching practices that the participants would like to see addressed.

With regard to the essential parameter TEACHING STRATEGIES, the teachers pointed out that:

9. As most of the design teaching is teacher-centred and driven by assessment and registration compliance requirements, there is a need to move towards a more student-centred approach. (Listed by 8 Institutes).

10. There is a need to enhance professional development and opportunities for discourse about design teaching practices in order to develop a common understanding of the pedagogy principles that underpin the teaching practices of individual teachers, particularly part-time and casual teachers. (Listed by 7 Institutes).

11. The there is need to shift the focus of TAFE design education beyond meeting industry skills requirements for employment, and place greater emphasis on the quality of design outcomes. (Listed by 6 Institutes).

12. There is a need to develop an effective model for clustering and integration of units, in order to reduce the current complexity of teaching and assessment coordination. (Listed by 6 Institutes).
And similarly with regard to the important parameter WAYS LEARNING, it is found that project based learning, reflective learning and work placement-based mentoring is a common feature of the learning experience of students in TAFE design education, there are some concerns that needed to be addressed, including:

1. There is a need to increase the amount of time and opportunities for critical student reflection about their own and their peers’ work.
2. There is a need to assist some students to overcome their discomfort and reluctance towards engaging in the reflection process.
3. There is a need to emphasise the role of critical reflection, and to provide relevant coaching to students in order to improve their reflective practice as well as stress management.

Relatedly, for the equally important parameter ASSESSMENT, it was found that some teachers are reluctant to adapt to the CBA practices and there is division in their ranks. This is largely due to the perceived philosophical incompatibility of an assessment approach that favours standardisation being applied in an area of education that always strives to develop students’ creativity, originality and non-standard responses to design problems. This continues to be one of the main criticisms of CBA and ungraded assessment because it does not appear to recognise the demonstrated differences in the quality of the students’ competent design work. Other important findings that need to be addressed include:

1. The need to remove barriers to the implementation of graded assessment where it can be demonstrated that it is appropriate, fair and valid.
2. The need to streamline workplace assessment process and to ensure that students employed in the industry are undertaking relevant workplace tasks that will allow them to demonstrate the required competencies.
3. The need for closer links and consultation with the higher education sector, to assist with developing a better understanding of CBT and CBA practices used in TAFE, to ensure that adequate and fair articulation pathways and recognition is given to TAFE graduates who seek to continue their studies in the higher education sector.
4. The need to place greater emphasis on encouraging and coaching of students to engage in self and peer-assessment.

And finally, for the all important parameter GRADUATE ATTRIBUTES, irrespective of the affirming results from the teachers’ point of view, their main remaining concerns that need to be addressed include:

6. Graduates who complete one year of TAFE design education, (up to Certificate IV level), usually are not readily able to find productive employment in the design industry sector as there were limited employment opportunities at that level. (Listed by 8 Institutes).

7. Graduates’ creative thinking and design skills are not as well developed as their practical technical and production skills. (Listed by 6 Institutes).

The results of this thesis indicate how the systems design approach, and related parametric model, may be used to arrive at a clearer understanding of design education in the TAFE sector. The results of such studies in the future are of critical importance to those responsible for evaluating and reviewing the TAFE design education system. Although this model has been developed with respect to TAFE design education teacher stakeholders, it is reasonable to propose that such an approach may be applied to other discipline areas and stakeholders in the broader TAFE education system.

5.6.2 Recommendations for future research

- The views, aspirations and criticisms of the other important stakeholders need to be surveyed in relation to the identified parameters and their constituent variables. Consequently, the parametric model proposed in this thesis needs to be expanded further mindful of these views and aspirations along with the related empirical data.

- Further studies should extend the investigation of any existing divisions among the teacher stakeholders with respect to CBT and CBA based implementation of Training Packages in the TAFE design education system, and find ways to resolve remaining differences.
• The TAFE design education system, together with industry bodies, should undertake a more proactive investigation into emerging fields of design practice and applications in order to identify and service arising training needs in a timely manner.

• Further studies need to be undertaken to identify the scope of TAFE student projects, including client based projects, and the extent to which they are able to authentically simulate, within the TAFE settings, actual workplace projects and their real constraints.

• Further study is needed into the effects of the change from a teacher-centred to a student-centred approach to design teaching on the competence and achievements of students.

• Further research is required to investigate the extent to which TAFE design education teaching practices need to be more formally established and recognised by establishing a commonly accepted educational vocabulary to describe the pedagogy.

• The application of graded competency assessment needs to be further explored to identify and define criteria suitable for wider application within the TAFE design education system.

• Students’ reluctance to self-assess their own work or critically review the work of peers should be investigated to identify causes and develop appropriate encouragements and strategies that would enable students to overcome any barriers very quickly.

The references and appendices with all the experimental data, in the form of a DVD, follow in the final sections of this thesis.
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These appendices have been removed due to confidentiality restrictions. For permission to access these appendices, please contact the author, Christopher Ludwik Klimek.
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Christopher Klimek

Qualifications
B.Sc. (Architecture) 1973 – University of Newcastle
B. Architecture 1975 – University of Newcastle
Post Graduate Research Studies Urban Design 1979 – Warsaw Polytechnic
BA (TAFE) 1984 – CCAE /University of Canberra
Commenced Master’s Research Degree studies at Canberra University 1997-98
"NWW"- CIT Management Development Program 2001
C4 – Workplace Assessment and Training Canberra Institute of Technology (CIT) 2004
Commenced professional doctorate research studies at Canberra University 2003-

Postgraduate Research Experience
Research Title: "The revalorisation study for the development of a Silesian historical mining town, Olkusz, in the context of major industrial and urban expansion".

The aim of this research was to evaluate the town’s heritage characteristics and values, particularly those of the historical town centre and the extensive basements linked to underground lead and silver mines workings and the surrounding semi rural landscape. In view of the anticipated major expansion of industrial complexes in Silesia, the industrial heartland of Poland, there was a need to develop improved transport links to Katowice and Krakow and to provide housing and community developments for a growing commuter population. The study also identified scope for tourism and developed a guidelines framework for conservation and redevelopment within the historical town centre precinct.

1997-1998 Master of Environmental Design (By research), (incomplete) Canberra University
Thesis Title: "Heritage conservation issues surrounding spatially and contextually significant public interiors in the ACT."

In this thesis the spatial and contextual qualities of significant public building interiors in the Australian Capital Territory, built during the period of 1900-1990’s were to be investigated with reference to current heritage classification practice and the role of conservation policies in ensuring a continuing and viable future for those interiors. The relatively short life cycle of commercial and some institutional interiors often results in their redevelopment before they can be adequately recognised as significant and worthy of heritage classification and protection as representative examples in the interior design tradition that trace its evolving continuation.

1993-2002 Curriculum research and development related to design teaching and assessment practice in the context of vocational education and training, Canberra Institute of Technology.

Professional research and development associated with the introduction of Design Studies and the re-orientation of vocational design programs offered by the Faculty of Design, CIT towards greater emphasis on design and creative interpretation and expression. This has resulted in the development of competency based design teaching and assessment practice at advanced diploma and degree level programs that articulate to further tertiary level study at university.
2003- continuing
Professional doctorate research studies, Canberra University

Thesis title: “A study of design education in the ACT Vocational Education and Training context.”

This study aims to explain the current design teaching and learning in the context of national VET design education practice and suggest ways in which this practice may evolve to more effectively meet emerging training needs of the creative industries.

**Professional experience**

Manager Education Planning and Quality Unit 2002 - representing the CIT Faculty of Design on a variety of committees:
- Curriculum Coordinators’ Network since 1999-
- Quality Coordinators’ Network
- Various CIT Process Improvement Working Groups
- HR and Professional Development Network
- Board of Senior Secondary Studies Accreditation panels for Design Technology and Art and Design courses

Lecturer/ Curriculum Developer – Design Studies, Building and Interior Design, CIT Canberra 1982 –
Project Architect-Bunning and Madden Architects
Sydney 1981 – 1982
Assistant Architect-Haesler Morris and Associates Pty. Ltd.
Sydney 1980
Project Architect-Bruce Lawson Architect Pty. Ltd.
Assistant Architect-Bruce Taylor Architect Pty. Ltd
Sydney 1974 – 1975

**Additional Information**

Member of Design in Education Council of Australia DECA
Member of AVETRA
Associate Member Royal Australian Institute of Architects (ARAIA) 1976-1996 (resigned)

**Publications:**


**Conferences and Workshops**

AVETRA Conference, Canberra 2004
Societies for sustainable futures 3rd International Conference University of Canberra 2003
Quality Assurance Higher Education Workshop 2002
Basic HTML and Web Page Design 1999
NIDA Professional Presentation Workshop1998
“Problem Based Learning for the Professions” HERDSA conference NSW University 1985
Informed Consent

to participate as research contributor in the

Professional Doctorate Research

of

Christopher Klimek

School of Design and Architecture
University of Canberra

Supervisor
Professor Emeritus Livio Bonollo Ph.D
Professor of Industrial Design
University of Canberra
Ph (02) 6201 5070

Research topic

“A study of design education in the Australian Vocational Education and Training context.”

Objectives
The purpose of this research is to investigate and describe current Vocational Education and Training design teaching and learning practices in the ACT and other selected Australian states and to develop a new theoretical framework to inform and improve the capacity of teaching and learning practices to meet the emerging needs of the design industry.

Problem statement
In recent years there have been a number of Australian Government sponsored reports and papers that have highlighted issues surrounding the emerging need to reform Vocational Education and Training in Australia to meet the challenges of globalised, technology driven and knowledge based economic development. The nature of employment is also changing to one that is less stable and predictable. (Employability Skills for the Future, Commonwealth Department of Education Science and Training, March 2002).

As recently as August 2004, the Federal Government announced a major review of education in the visual arts, crafts and design industries. The review will investigate curriculum, teacher preparation as well as TAFE and university courses on offer to students to identify areas for improvement and development of more appropriate course outcomes. The extent of change in current and future so-called ‘creative industries’ has overwhelming implications for how design education and training is conceptualised, developed and provided to students.

This research will seek to:
1. To investigate and describe current design education VET practices in the ACT and other selected states.
2. To survey and analyse current VET teacher/learner attributes.
3. To evaluate the extent to which current practice achieves required outcomes.
4. To suggest ways in which teaching and learning in (ACT) VET design education and training could be improved to meet the needs of the design industry.
Research participant’s requirements
Managers/leaders of design education programs will be required to undertake an individual interview of approximately 30 minutes duration and complete a questionnaire survey during the researcher’s visit at the participant’s institution. There may be a need to participate in limited follow up telephone interview or correspondence.

Teaching staff members will be required to participate in a focus group discussion. There may be a need to participate in limited follow up telephone interview or correspondence.

Student participants will be required to participate in a focus group discussion and complete a questionnaire survey.

Participants may be asked to provide samples of curriculum or other documentation used in their design education practice.

The researcher may be invited to observe classroom activity and view student work for the purposes of this research.

Participants will be able to read and verify the ensuing transcripts. There are no risks, discomforts or hazards anticipated for anyone participating in this research project.

Benefits
No financial compensation will arise out of participation in the research.

Confidentiality
The identity of participants will not be disclosed in either the final thesis or following papers or public presentations arising from this research. Participants will be allocated code numbers or pseudonyms so that they will be able to recognise themselves in the work and other readers can follow particular characters in the narrative transcripts.

The researcher will securely store the raw material collected and records of the research. Access to this material and records will only be made available to supervisors and examiners of the research, or other researchers of similar fields, subject to confidentiality undertakings that will protect the identity of the research participants.

As required, all draft material, preliminary transcripts, duplicate records of interview and surveys will be disposed of in a manner that protects the identity of the research participants.

Accuracy
Research participants will be able to read material they have contributed prior to publication. Editing of the subject’s personal record will be permitted at the draft stage and a signed release will be required from each participant prior to the publication of the thesis.

Safeguards
Participation is voluntary and participants may withdraw at any time without penalty, or avoid answering any question they do not wish to answer.

Any enquiries relating to this research project may be made to the supervisor.

I have read and understood the information provided. I am not aware of any medical condition that would prevent my participation, and agree to participate in this research.

Signed: ___________________________ Date: ______________________

Participant’s Name: ___________________________
Participant Information Sheet

to participate as research contributor in the

Professional Doctorate Research

of

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This research will seek to:

1. To investigate and describe current design education VET practices in the ACT and other selected states.
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Research participation requirements

Managers/leaders of design education programs will be required to undertake an individual interview of approximately 30 minutes duration and complete a questionnaire survey during the researcher’s visit at the participant’s institution. There may be a need to participate in limited follow up telephone interview or correspondence.

Teaching staff members will be required to participate in a focus group discussion. There may be a need to participate in limited follow up telephone interview or correspondence.

Student participants will be required to participate in a focus group discussion and complete a questionnaire survey.

Participants may be asked to provide samples of curriculum or other documentation used in their design education practice.

The researcher may be invited to observe classroom activity and view student work for the purposes of this research.

Participants will be able to read and verify the ensuing transcripts. There are no risks, discomforts or hazards anticipated for anyone participating in this research project.

Benefits

No financial compensation will arise out of participation in the research.

Confidentiality

The identity of participants will not be disclosed in either the final thesis or following papers or public presentations arising from this research. Participants will be allocated code numbers or pseudonyms so that they will be able to recognise themselves in the work and other readers can follow particular characters in the narrative transcripts.

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As required, all draft material, preliminary transcripts, duplicate records of interview and surveys will be disposed of in a manner that protects the identity of the research participants.

Accuracy

Research participants will be able to read material they have contributed prior to publication. Editing of the subject’s personal record will be permitted at the draft stage and a signed release will be required from each participant prior to the publication of the thesis.

Safeguards

Participation is voluntary and participants may withdraw at any time without penalty, or avoid answering any question they do not wish to answer. Any enquiries relating to this research project may be made to the supervisor.
Informed Consent Form

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I have read and understood the information provided. I am not aware of any medical condition that would prevent my participation, and agree to participate in this research.

Participant’s Name:

Signature:

Date:
“DESIGN EDUCATION IN THE CONTEXT OF AUSTRALIAN VOCATIONAL EDUCATION AND TRAINING”

RESEARCH AIMS:
1. To investigate and describe current design education VET practices in the ACT and other selected states.
2. To survey and analyse current VET teacher/learner attributes.
3. To evaluate the extent to which current practice achieves required outcomes.
4. To suggest ways in which teaching and learning in (ACT) VET design education and training could be improved to meet the needs of the design industry.

INTRODUCTION:
- In terms of vocational design education provided by TAFE institutions in Australia it is important to explain and understand what is being done, why it is being done as well as what are some of the most effective ways of doing it.
- This pilot study aims to identify the significant features that distinguish vocational design education provided by TAFE institutions from that provided by other sectors, such as secondary and undergraduate university study.
- To meet the needs of creative industries the main task of the Australian TAFE systems is to provide relevant work-related learning and teaching settings and experiences to develop capable and creative designers.
- Highlighting and understanding the links between the critical elements that underpin quality teaching and learning practice and graduate work-readiness is a priority for design educators in TAFE.
- To explore evidence of thinking about design education in the TAFE context this pilot study sets out a series of questions that start with:
  - curriculum development and interpretation
  - student selection
  - program delivery
  - student assessment
  - reflection and evaluation of what works well and what doesn’t.
QUESTIONS FOR DISCUSSION

CURRICULUM DEVELOPMENT:

1. What are the current underpinning philosophies or educational theories that influence curriculum development in the VET context and distinguish it from the other education sectors?

2. What have been the influences in the last ten years on curriculum design in the area of design education and training?

3. What influences have structured study pathways and external articulation requirements on the curriculum design?

4. Is VET pedagogy currently evolving in isolation from teaching practices in the other sectors?

5. Are there any identified gaps in the education and training of designers in VET?

6. What are the main requirements of design education in VET in the context of a knowledge-based economy that curriculum development will need to address in the next 5-10 years?

STUDENT SELECTION:

1. What are the strengths and distinguishing practices in VET with regard to how students are recruited into design programs?

2. How are student selection decisions made and what influences are operating when making those decisions?

3. What are the attributes and expectations students bring into their study program?
PROGRAM DELIVERY:
1. What steps are taken to ensure that the programs are being delivered in accordance with the curriculum and the underpinning philosophy or educational approach that informs teaching and learning practices?
2. What are the main strengths and differences that distinguish VET design teaching and learning practices?
3. What are the significant modes of teaching that are effective in the development of young designers?
4. In what ways have structured pathways and articulation arrangements influenced the VET teaching practices?
5. How do teachers ensure that the appropriate balance between theory and practice is maintained and is this balance shifting one way or another? If it is shifting why is this happening?
6. What role do design projects play in the development of design skills and knowledge and how do teachers ensure that ‘project outcomes’ are linked to the curriculum outcomes and meet industry needs?
7. How much reliance is there on student independent study and practice including work experience in order to meet expected outcomes?
8. In what areas of teaching and learning practice do you see a need for change in order to respond to the emerging training needs of the design industries?
9. In what ways could teaching and learning practice in VET be made more creative and innovative in responding to design industry training needs?

ASSESSMENT:
1. What are the strengths and distinguishing features of the assessment processes used to assess design students’ performance in the VET context?
2. What are some of the main difficulties with making those assessments?
3. When making judgements about student performance and achievement of learning goals what factors influence that decision-making?
4. How could assessment practice be improved to make it a more positive experience for students?
REFLECTION AND EVALUATION:

1. What is the value placed on reflection and evaluation in the context of design education in VET?

2. Who are the participants in the evaluation process?

3. In what ways does this assist the VET system to be more responsive to the needs of the various stakeholders?
INTERVIEW EVALUATION:
Please select the response that fits your impression.

1. The introduction sets the purpose and context of the interview effectively. YES NO

2. If no why not?
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

3. The questions seem relevant to the study aims. YES NO

4. If not why not?
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________

5. What was the best about the way this interview was structured and conducted?
   __________________________________________________________________________
   __________________________________________________________________________
   __________________________________________________________________________
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6. In what ways could it be better or suggest alternative relevant questions for this study?
   __________________________________________________________________________
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