Can Vocational Training Be Better Structured to Facilitate the Acquisition of Job Related Skills?

S.P.Heffernan

ABSTRACT

As Australia attempts to improve its global economic standing, each industry, and their respective enterprises, is necessarily undertaking considerable transformation as they embrace the need to adapt. Industrialised technologies and operating methods are changing more rapidly than at any other time since the inception of mass production. The imperative for a more efficient approach to manufacturing and the production of goods is paramount for organisations to enable them to obtain and to sustain a competitive position within a rapidly changing world economy.

The linkages between competitive manufacturing and vocational education are widely recognised as important factors that contribute to sustainable business practices. This research explores the educative processes that are being used to bring new-start employees' skills and knowledge levels up to the required standard for a globally competitive manufacturing company. It also looks at vocational education, and examines the provision of service by the formal providers who are now altering their relationship and service arrangements at the enterprise level.

The research comprised an extensive literature review, the application of a survey questionnaire (see Appendices A, B and C) and an analysis of the data which collectively comprised the body of a comparative opinion based study that was undertaken in a manufacturing environment. The research question was designed to explore the issues relating to the imparting of knowledge and skills to new start employees. An examination of the key providers' ability to deliver training, the relevance and applicability of the study materials used are also addressed. The study looks at the learning process in the context of the new employee and how they acquire skills and competencies for their new job; with a view to examining whether vocational education can be better structured to facilitate the acquisition of essential job skills.

The study examines whether existing training methodologies are addressing the real needs of the employers and employees. It proposes that most vocational training programs could be better structured to support the long term application of imparted skills, bearing in mind that traditional training methods are designed to deliver large slabs of information, that are not necessarily relevant to the individual's immediate use or related to their work activity. The study examines various methods that can be used to impart knowledge and skills and determines that there are distinct advantages for utilising a particular suite of design and delivery techniques.

The recommended procedures do not diminish the value or importance of any other method of delivery. What they do recognise is that the individual has certain needs and responsibilities in the early employment phase, and that their efforts to fulfil these are best supported by focusing on the knowledge and skills necessary to carry out the immediate needs of the job.

DECLARATION

I, Stephen Paul Heffernan, certify that this thesis contains no material which has been accepted for the award of any other degree or diploma in any institute, college or university, and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Stephen Paul Heffernan
29 March, 1996

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LIST OF ABBREVIATIONS AND ACRONYMS

ANTA	Australian National Training Authority
ASAP	As soon as possible
AVTS	Australian Vocational Training System
CAE	Council of Adult Education
Improvt	Improvement (skill related)
ITB	Industry Training Board
ITAB	Industry Training Advisory Board
NTB	National Training Board
STB	State Training Board
TAFE	Technical and Further Education
Tng	Training (abbreviated)
USA	United States of America
VET	Vocational Education and Training

Chapter 1: INTRODUCTION

This chapter lays out the framework within which the research was conducted. It provides an insight into the intent of the study, explores the potential benefits and discusses the data collection methods. An examination of the environment within which the research was conducted is also provided. Subsequent chapters examine *Literature Review* (chapter 2), *Research Methodology* (chapter 3), *Findings* (chapetr 4) and *Summary, Conclusions and Recommendations* (chapter 5).

Chapter 2 was designed to ensure that the research was indeed addressing a problem which was new and that important variables were not omitted, and were addressed appropriately within an acceptable framework of research. Chapter 3 describes the research process and explains the methods for hypothesis generation, data collection, analysis and interpretation. Chapter 4 provides the results and conclusions which can be estrapolated from the data findings. It looks at the data obtained from the various sources and provides an understanding of the outcomes, this examination provides a number of conclusions which are dealt with in the next chapter. The final chapter (5), is devoted to providing a summary of the research and the gives a number of recommendations for implementation.

1.1 Need For Change

Over the last decade businesses have faced an unprecedented era of change. They have had to deal with re-organisation, technological shifts, economic uncertainty, increased global competition and deregulation which has resulted from large movements in and emphasis on the international economy. The recently published report, Enterprising Nation: Renewing Australia's Managers to Meet the Challenges of the Asian-Pacific Century (Industry Taskforce Report, 1995), addressed leadership and management skills, focused on issues that would impact on organisational success in the future and suggested that there are three main areas that will impact on businesses in the next 15 years: globalisation, technological innovation and an increasing emphasis on the customisation of

products and services. These factors are already impacting on larger organisations, forcing them to become more flexible and adaptive, and they also provide the opportunity for smaller enterprises to create and seize new market opportunities.

As Australia attempts to improve its global economic viability, each industry, and their respective enterprises, is necessarily undertaking considerable transformation as they embrace this need to adapt. Industrialised technologies and operating methods are changing more rapidly than at any other time since the inception of mass production. The imperative for a more efficient approach to manufacturing and the production of goods is paramount for these organisations to enable them to sustain a competitive position within this rapidly changing world economy. In the speech delivered by David Karpin (Karpin, 1995, p. 10) on releasing 'Enterprising Nation', 26 April, 1995 he indicated that 'increasing the knowledge and skills ... is fundamental to this enormous task ... and that good managers are the key to a more competitive economy and better performing enterprises'.

For Australia to become more competitive it is essential for manufacturing organisations to commit to developing their people. Baylis (1994, p.23) examined this point and said that by being able to 'recognise that people, and the skills that they have, are the key to a successful economy capable of competing and succeeding in world markets' indicated there is a link between education, training and the competitiveness of the economy. This being the case, it is essential for a truly sustainable economy that the educative processes be both reflective of and responsive to the needs of the individual in the workplace.

1.2 *Background to the Problem*

In recognition of these imperatives to change and to become more competitive, organisations are focusing on the development of their employees. It has now become apparent that there is a need to ensure that each individual is appropriately educated to maximise their full potential in their chosen vocation. This chapter examines the background and influencing factors related to the

topic. The research, carried out in Victoria, looks at vocational education, and examines the provision of service by the formal providers who are now, by necessity, altering their relationship and service arrangements at the enterprise level. It is based on a belief that although current commercial training is developed to provide a service to an industry, there are discrepancies between what is needed and what is supplied.

Having been employed in the Training and Development field for many years provided opportunities to talk to many managers, supervisors and employees about the relevance of particular training techniques and interventions. As a result of these peoples' anecdotal observations a number of ideas and issues regarding vocational training began to emerge. From these ideas it became apparent that there could be a need to address certain aspects of vocational training delivery.

This research resulted from the concerns expressed during conversations with management and employees who had made observations that training, currently being provided, could be better constructed to cater for the needs of a new start employee at the workplace.

Research by Billet (1993) revealed that many people prefer to learn their job requirements by being guided by a work colleague and by physically participating in their work activities. It is further suggested that these 'informal learning settings, such as workplaces, may provide an optimal place for the acquisition of robust and transferable skills' (Billett, 1993, p.4). On checking further with employees of the organisation studied, they stated that with most training they had received the trainers involved appeared to have had little experience in the work environment. Perhaps this lack of industry experience contributed to the feeling employees had that existing training methods were isolated from the reality of the workplace. It was recognised that, although the existing vocational training had a place in the new start employees' needs, it was not adequately providing what is best for the organisation or the individual in the early part of their career.

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The management group of the company studied considered this problem to be significant. They perceived there were wasted resources and outputs; including financial, production and human potential, during a new person's early employment phase within their organisation. It was also felt that current induction and training practices adversely impact on the behaviour of an individual in a number of areas, including their performance capabilities and organisational assimilation.

The Study

1.3 Intent of the Study

After some consideration, and in response to the observations of the managers and employees, a number of questions arose. The primary concern was; *'Can Vocational Training be better Structured to Facilitate the Acquisition of Job Related Skills?'*. This subsequently became the pivotal research question which was designed to promote the exploration of issues relating to the acquisition, and training methods that are currently used. An examination of the key providers' ability to deliver, the relevance and applicability of the study materials, are issues that are addressed. The research looks at the learning process with a focus on new start employees and the acquisition of skills and competencies for their new job. The research undertaken comprised an extensive literature review, the application of a questionnaire (see Appendices A, B and C) and an analysis of the data which collectively comprised the body of a workplace study undertaken in a manufacturing environment.

The workplace study was conducted to establish the various respondents' reactions to different training environments and delivery methods to which they, or their workers, had been exposed. Managers and employees provided information in this study.

It was intended that the study would explore existing methods used to provide these services to new start employees and thereby assist in determining whether there is a case to support the need for re-arranging vocational training practices.

1.4 Potential Benefits

If the assumptions for implementing changes to training methods are justified, then it would be reasonable to assume there must be some distinct advantages in implementing these changes. The most significant advantage to the organisation appears to be in terms of cost savings, these being:

- substantial monetary savings to the manufacturing organisation by removing formal training from the early induction phase. The enrolment of individuals in various courses, commitment of time and subsequent impact on

productivity can amount to many thousands of dollars, which can then be multiplied by each new start entering the workforce. Any benefit from this financial investment is often lost when there is an early separation of the parties. It should be noted that the withholding of formal training does not remove, or replace the need to provide good induction and on-the-job training.

- improvement in productivity outcomes would be realised, given that the new start would spend more time at the workplace, involved in direct production activities. It is contended that new employees who quickly acquire the knowledge and skills related to their immediate work processes assimilate into the organisational environment and are readily accepted by the rest of the workforce. Murray (1991, p.35) indicates that this acceptance process can be accelerated by having the new start attached to a mentor, who not only introduces the individual to the work function, but coaches them through the intangible cultural skills needed in the new workplace, thus providing distinct benefits to both the new employee and the organisation. Further support for this can be found in one recommendation of the Industry Task Force on Leadership and Management Skills (1995), which proposed the learning and knowledge transfer processes should be extended to include coaching and mentoring as methods for individual development.

1.5 Rationale

There are several questions which have been examined throughout the research and these support the main thrust of the inquiries which have been based upon the research question: *'Can Vocational Training be better Structured to Facilitate the Acquisition of Job Related Skills?'*. If this can be supported, there should be a significant advantage in terms of learning for the new start through re-arranged and re-structured training, which should result in a reduction in costs and an enhanced performance capability as the new start individual grows within his/her job.

The inquiry has been designed to address the need for the re-arrangement of vocational training. By looking at the existing styles of learning and the delivery

methods being used it will explore the providers' capability to respond and deliver the services according to the needs of the client group.

1.6 Survey

Given that a comparative opinion based study can be conducted in the natural environment of the organisation and have 'minimal impact on the normal flow of events' (Sekaran, 1992, p. 102) it appeared that the most effective manner available to collect the data for the research was to conduct a survey. As a result, the managers and new start employees were invited to undertake a survey, which was designed to examine their training needs and the capacity of the provider to respond and deliver according to these perceived needs. This survey was conducted in three parts and targeted key groups in the workplace. These were:

- *Group 1:* new starts who were undertaking structured, formal and accredited vocational training at the workplace, but primarily in an 'off-the-job' format;
- *Group 2:* new starts who were undertaking structured training at the workplace, but only in an 'on-the-job' format; and
- *Group 3:* supervisory group, consisting of line managers, and team leaders, who were canvassed to provide additional information regarding the workplace, training programs and providers.

The survey was structured to gather information on:
- skill development;
- training provision; and
- job performance.

The intent of the survey was to demonstrate that there is a disposition towards a particular methodology of development and delivery of training for new start employees. It is through the answers to a number of basic assumptions that the research question can be either supported or rejected.

Research Question

The research question, sub-questions and hypotheses which flow from it, all relate to the research group and their work setting.

Can Vocational Training be better Structured to Facilitate the Acquisition of Job Related Skills?. The inquiry process and comparative outcomes are depicted diagrammatically in Figure 1.1.

Existing productivity outputs	versus	Managers' (5) perception of quality & productivity	+	Employees' (25) perception of quality & productivity	=	Perceived change in outcomes of quality & productivity
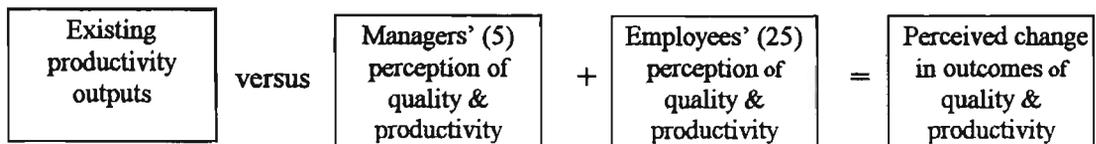
Figure 1.1 Productivity Change

Hypothesis 1

The achievement of desired productivity levels of new starts is dependent upon training.

This assumption has been addressed by eliciting responses from managers and employees asking them to compare quality and productivity level changes to established output levels.

A comparison can be made of perceptions of productivity outputs of pre-new start employment and post training provision for new starts thereby determining the perceived productivity changes that may have been impacted upon by the new start employee.

Hypothesis 2

Formal training is not necessary for new start employees to execute their work to the desired performance standards.

By comparing 'a' against 'b', and 'c' it is possible to establish 'd' (skill level change attributed to formal training).

Relevant skills at commencement (a)	Managers' perception of attained skills post formal training (b)	Employees' perception of skills post formal training (c)	=	Contribution of formal training to skill level improvement post training (d)
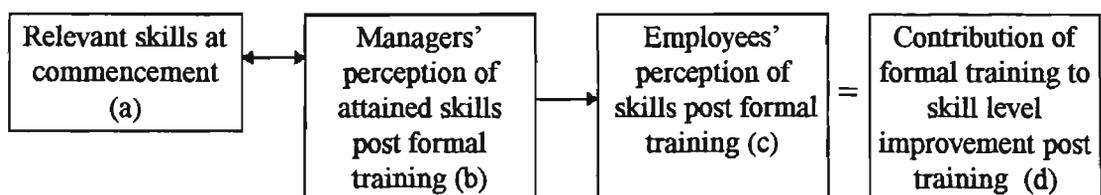
Figure 1.2 Skill Level Change (due to formal training)

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Then by using a similar method of comparison it will be possible to establish 'h' (skill level change due to on-the-job training).

Relevant skills at commencement (e)	Managers' perception of skills post on-the-job training (f)	Employees' perception of skills post on the-job training (g)	=	Contribution of on-the-job training to perceived skill level improvement post training (h)
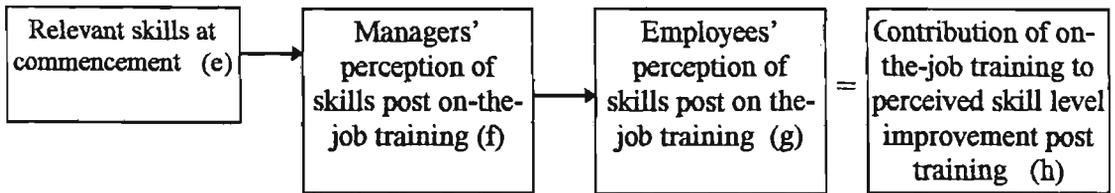
Figure 1.3 . Skill Level Change (due to on-the-job training)

Thereby enabling a comparison between formal and on-the-job training to establish which method produces the greatest improvement in skill level. Therefore, from these findings, using the method of comparison between 'd' and 'h', the perceived best method for providing training for new starts 'i' can be derived.

Contribution to skill level improvement post formal training (d)	versus	Contribution to skill level improvement post on-the-job training (h)	=	Perceived best method to provide training to new starts (i)
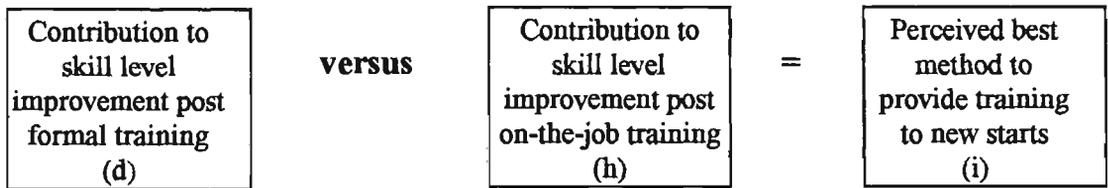
Figure 1.4   Best Method to Provide Training for New Starts

Having established the managers' views of the value of on-the-job training and formal training and their perceived best method to provide training to new starts it is possible to establish a position that will either support or reject the research question.

Existing formal training methodology	versus	Perceived best method for delivery of training to newstarts (i)	=	Need for re-arrangement of newstart vocational training
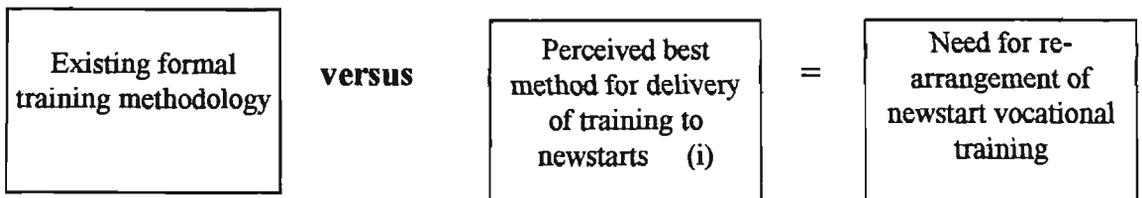
Figure 1.5 Re-Arrangement of Training

1.7 Limitations

There are a number of limitations that either impact on the outcomes, or contribute to the need for further study to ensure validity of the current findings; these are:

- the research is an opinion based study and no experimentation on new start employees was conducted;

- the research should not be generalised beyond the sampling frame;

- the size of the survey group (30 people) was small (a one hundred per cent response rate for the questionnaire was achieved);

- only one manufacturing environment was studied;

- an inability to clinically observe the learning environment;

- an inability to remove external influences, such as informal learning and the effects of prior knowledge; and

- other confounding/intervening variables may contribute to the outcomes and these include:

    * new start employees with high skill levels entering into the industry;

    * pre-testing of potential employees before employment; and

    * selection of potential employees with generally high education standards/qualifications.

## The Environment

1.8 The Organisation

Most manufacturing organisations within Australia operate within an industry grouping. These industry groups are mostly self monitoring and generally have a Training Advisory Board, or some other body, that oversees and identifies formal vocational training to ensure a skilled workforce within the industry.

The company in which the study was conducted has linkages with the Victorian Allied Industry Training Board that has, in conjunction with the Federated Brick, Tile and Pottery Industrial Union of Australia, assisted in the development of vocational training for employees within its identified industry.

The organisation in question is part of a British-based multi-national conglomerate and is situated in the industrial manufacturing belt of western Melbourne, Australia. It has approximately one hundred employees on site, and utilises specialist skills of external consultants and contractors to provide for any technical shortfall.

1.9 The Market

Historically, the company has operated in a comparatively stable, but maturing ceramics manufacturing market that has provided consistent financial performance. The company (pre 1994) had not perceived a need to commit money for development or innovation in their product range or for cultivation of markets on a global scale. The protection afforded by government tariffs and their being the only quality accredited Australian manufacturer of these products had concealed the need for differentiation or nurturing of a competitive advantage in the domestic or international market place.

The federal government's abolition of tariff protection through deregulation of the market removed this artificially stable environment and forced the company to move towards becoming world competitive, when the attendant need to implement internal structural and cultural reformation became an important issue. During this process of change, which took almost two years, an enterprise agreement was negotiated with the union and employees. Contained within this agreement is a commitment to provide formal vocational training which will be delivered by the Technical and Further Education (TAFE) system.

1.10 Definitions

A 'new start' employee, for the purposes of this research, is defined as an individual who has been employed in the workplace less than three months.

Education generally relates to the cognitive process as defined by the psychologist Bruner.

Training is defined by the behaviourist perspective of the psychologist Skinner.

Smith (1992, p.118) described any training that is done away from the normal work station as 'vestibule training'. Off-the-job training (in the context of workplace) takes place away from the normal work situation - either off the premises (e.g. TAFE skill centres) or on the premises in an area specially equipped for training purposes. This study's use of off-the-job training is interchangeable with Smith's (1992) description of vestibule training.

By contrast, on-the-job workplace training is undertaken in the workplace as part of the productive work of the learner and it is in this environment that 'individuals learn about their work constantly, refining methods of working, making jobs easier for themselves, learning from others and so on' (Smith, 1992, p.116).

Competencies include both skills and tasks and are described by Smith (1992, p.49) as 'the specification of knowledge and skill and the application of that knowledge and skill within an occupation or industry level to the standard of performance required in employment'.

Vocational training is considered to encompass competency based training, competency based education and performance based training for the workplace.
The TAFE Training system, which is under the auspices of the State Government, recognises the industry need for training and has accepted responsibility for providing this service. It (TAFE) offers an extremely wide range of vocational and non-vocational courses which are available as pre-vocational traineeship, trade technician and para-professional qualifications. Programs provide entry-level training, specialised instruction in particular aspects of job skills, pre-vocational training prior to employment and preparatory or bridging instruction as access to a chosen vocational course or to supplement previous training.

Workplace training is a traditional procedure which has evolved from the workplace need to provide specific on-the-job training. It has traditionally been employment-based skill development provided by skilled operators or technicians from within the operational area. This workplace training has, over a period of time, expanded and now includes the provision of on-site training in areas that relate to or support vocational development.

Flexible Delivery is a means by which providers are able to ensure learning is tailored to suit the needs of the client (Misko, 1994).

In the publication 'On-the-Job Training' (Department of Industrial Relations, 1989, p.7) the Trainee Centred Approach is described as 'ensuring that the trainee is the focus of the learning' and indicates that people learn better if the subject matter is related to existing knowledge.

Directive learning (didactic) is regularly used in a lecture style setting (e.g. universities) and relies entirely on the ability of the learner to absorb the relevant information.

Chapter 2: LITERATURE REVIEW

In response to the assumptions outlined in the previous chapter an extensive search of literature from over the last 10 years was undertaken, and included information from tertiary, secondary and primary sources. This activity was undertaken to ensure that no important variable was ignored, and that information or impacting influences were not disregarded or missed, thereby diminishing the value of the current research. The work contained in this chapter proceeds from a broad general perspective and narrows to address specific issues relating to the research topic.

2.1 An Historical Perspective

Since the beginning of the industrial revolution most manufacturers have believed that the introduction of bigger and better machinery would provide the competitive advantage that they sought. Their commitment to the Taylorist approach to work, and their demand that everyone succumb to the 'concepts of dedicated and rigidly controlled production processes and people' (Ford, 1990, p. 2) have finally been challenged. The industrialists' beliefs, in recent times, have proven to be ill-founded and it is now recognised that technology, per se, will not achieve the desired paradigm shift in quality or productivity gains needed and that 'these strategies (to change) are dependent on people skills rather than equipment capabilities' (Training Costs Review Committee, 1990, p. 8).

It is now believed that most gains will be achieved through re-skilling and motivating new or existing human resources who then 'will increase the speed by which these initiatives secure significant economic benefit' (Enterprising Nation, 1995 p.1). It is important to note that some of these strategies which include re-organising or re-structuring work practices and procedures are not dealt with in this study.

According to Atkinson, (1994, p.60), 'Because the rate of technological change continues to deflate the value of formal education, ... academia will never be able to totally prepare people today for tomorrow's work. The inability of

educational institutions to provide the desired outputs, the skilled worker, has exacerbated the skill shortages that currently exist within the workplace. Activities occurring in industries to a large degree support the assertion that educational institutions are not fully meeting training needs. In just one industry - the Building and Construction Industry - Incolink, the Housing Industry Association and the Master Builders Association of Victoria all now provide skill based training for their members' employees.

In recent times there has been an increase in demand for workers with greater skills and training who understand and are capable of utilising these new technologies which have been designed to support the work methods being implemented. Many of the new technologies require sophisticated and specialised production operators whose skills are distinctly different to those provided by traditional sources of skilled labour. Basically, what industry wants and needs now is people who are competent and highly skilled at their work.

2.2 Training Reforms

Given that these workplace changes are profound, and that the employee is required to meet these new demands, there is a need for existing vocational training programs to be responsive and provide the training that will satisfy the needs of this emerging manufacturing environment. To initiate and support this skill development Hosie (1991, p.53) suggests that 'managers will need to articulate clearly their requirements and liaise far more actively with external training agencies who in turn will be encouraged to deliver training programs *in situ*' so learning may become a legitimate employment-related activity.

In line with this thinking, there has been considerable effort to reform the Australian vocational education and training system. These reforms have been primarily focused on 'enhancing the skill base and economic competitiveness of the nation, and at developing a training system which is focused on the training needs of its principal clients - industry and individuals' (Australian National Training Authority (ANTA), 1995, p.22).

There is a framework in which this education, training and structured work experience is designed and measured. The formal component is the Australian Qualifications Framework which encapsulates the Australian Vocational Training System (AVTS). Other bodies that provide similar recognition include employers, employer groups, industry groups and Industry Training Advisory Boards and government bodies (State Training Board). Any provider of education or training, which purports to provide accredited material for any consumer, must operate within this framework.

2.3 The Human Resource - the people

The organisation of work and the subsequent achievement of a company's goals and objectives are dependent upon managers having the appropriate resources to fulfil their needs. This includes having the right people focused on the right tasks; ensuring they have the right information, tools, incentives and controls to perform these tasks effectively and co-ordinating their efforts to achieve the organisation's objectives within given time frames and financial parameters. This cannot be achieved without ensuring the appropriate human resources are capable of executing the tasks in a predetermined manner with a predictable outcome.

There is a variety of options available for acquiring or accessing these resources, including recruitment, staff rotation or exchange, and training and development programs. According to Cacioppe et al (1990, p.58), Australia's employers have 'to a large extent relied on education institutions, immigration and overseas recruiting or Government sponsored programs ... to supply skills demanded' and that it is common practice to place employees into 'training programs' where they are exposed to structured programs of experiences that are designed to ensure a planned skill, knowledge and/or attribute improvement. These development programs assume that a competent individual will acquire the knowledge and skills to a level where the person can consistently perform to the standards required by the employer. These competencies should be acquired in an environment that is conducive to, and relates to the undertaking, which is, in

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these circumstances, on-the-job learning. Commitment to this learning behaviour, by employers, is manifested by a growing trend in industry to move towards this highly specific workplace training, which is described by Cacioppe et al (1990, p.65), when reflecting on training in recent years and predicting future trends, by saying:

> *Internal organisational courses will replace off the shelf and University courses for training. Recent surveys in America have shown that over the last five years the fastest growing category of training materials purchased have been custom materials, which indicates companies are increasingly using training that suits their specific needs.*

This assertion is contextualised (for Australia) by Peddle (1995, p.20) when he referred to the TAFE system's inability to respond to industry specific training needs and the consequential preference which is developing in industry for 'private providers who are seen to offer more innovative, cost efficient and flexible solutions to the workplace based training needs of industry.' The move to industry linked associations providing such training has already been demonstrated in section 2.1.

It is recognised that managers and enterprises want people to be competent and highly skilled at their work. Apprenticeships and formal vocational training have, to date, provided an avenue for these skills to be acquired. But, as Casey (1993, p.33) states:

> *Competence to industry standards will not be attained in an off-the-job program while the workplace cannot continue to support the initial development and cannot confirm the final achievement of competence.*

The preparation of the competent person requires the development of a series of skills, knowledge and a range of attributes to a level where the person can consistently perform at the standards required. This acquisition of skills, according to Collins (1980, p.23) 'can be learned through practice by almost any literate person.' What Collins continued to say is probably more significant:

> *What we learn in formal schooling has little effect on job performance. People who excel at what they do owe it to ... the trial and error which comes with everyday experience.*

Casey (1992) while supporting the main thrust of Collins' statement, pointed out that training had been moved out of the workplace but that it had now been recognised that on-the-job training would better support the acquisition of skills. Casey (1992, p.24) goes on to say that: "Delivery is the key component of the workplace classroom and should aim to maximise learning on-the-job rather than by traditional off-the-job methodologies".

A rather compelling statement that questions formal schooling and training and suggests that just being able to experience and participate in an on-the job learning environment is rewarding and provides a better learning environment. The trial and error approach to learning is highly appropriate for the research setting and a wide range of areas.

2.4 Learning Environment

Many innovative ways to deliver educational packages have evolved in recent years as providers embraced various technologies and activities that support training, add quality and speed of delivery at lower costs. As a result organisations are now turning away from the inflexible and rigidly programmed offerings of institutionalised providers and demanding that learning be tailored closely to the particular and immediate needs of the organisation (Process Manufacturing Industries, 1995). They have recognised that traditional vocational training is not satisfying their need to prepare employees for the workplace, and that integrative programs that 'provide a continuous form of performance appraisal against clearly written performance standards required at each level of the occupational structure' (Casey, 1993, p.24) are better placed to deliver the organisation's needs. Such calls for relevance in education are not new, and are discussed by Wood (1995, p.16) when the application of educational instruction was examined. It was asserted that those people that received induction into their work practices within a workplace context had their knowledge anchored in more authentic tasks. This trend is supported by Billett (1993 p.4) when arguing that 'informal learning settings, such as workplaces, may provide an optimal place for the acquisition of robust and transferable

vocational skills' that need to be supported by 'a range of attributes such as authentic activities, access to experts and other learners and socio-cultural environments which are highly prized in the development of expertise'. When discussing whether workers needed formal computer training, Goldstein and Fraser (1985) also supported this method of learning and contextualising skills when they asserted that very few workers needed to undertake formal training programs and that most learn their work skills through on-the-job training.

In response to the call for education providers to become more customer focused, Di Foggio (1990, p.9) indicated that the Technical and Further Education system is aware of the changes that are happening, and of the pressures and demands being made by industry for better training provision for their training dollar. The move to implement 'flexible delivery [which] has the potential for revolutionising the way TAFE works with industry to identify skills and deliver training' (Misko, 1994, p.4) has fallen short of consumers' requirements. It is further apparent from this that the TAFE system has identified the broad thrust of the changes but has failed to position itself to address the shortfall in its provision of service to the individual learner. Dawkins and Holding (1987, p.iii) also asserted that current education and training practices are too rigid and produced a range of skills which are too narrow to meet the needs of industry. As a result 'flexibility is hampered by a range of outmoded legislative and arbitral constraints, which emphasise time-saving rather than competence achieved' (1987, p.10), and as a result do little to attend to the true learning needs of the individual or the organisation who employs her/him.

In the National Vocational Education and Training Plan (Process Manufacturing Industries report, 1995, p.4) it is stated that:

> *The Process Manufacturing Industry, (however,) regards it as most important to ensure that such training has a practical, relevant focus and is not indulgent. (In particular, they should maintain a strong focus on developing the key competencies).*

This research was conducted in 1994-1995. It measured the value and effectiveness of training and revealed a 'substantial level of dissatisfaction with

the Vocational Education and Training system - in regard to client responsiveness, access, cost, flexibility and structure' and continued to say '... especially the TAFE system' (p.35) and subsequently it is now believed that 'the VET system offers little if any support for enterprise training' and is seen as inflexible, unresponsive to client or enterprise needs, too costly, and ineffective in promoting its courses and services. It was further stated in this report that the Process Manufacturing Industry group recognised, within the training framework, that existing programs have been designed to provide a high standard, generic program that is consistent with the needs of users across the country. In other words, VET and TAFE have perceived a need to provide industry wide training that is consistent and predictable in source, in delivery and outcome which can be recognised as a 'standard' or credentialed program on completion, but they 'will need to devote considerably more time and resources to improving its delivery' (p.30) at the enterprise level.

According to Misko (1994, pp 4-6), the TAFE system:

- provides a range of qualifications and accredited courses through its training programs;

- is driven by financial constraints through its obligation to provide a return on investment to the government;

- has an administrative component within the organisation which places financial and physical constraints upon its capacity to provide individualised and specialised training;

- fits within a government framework which imposes limitations on its functions, roles and accreditation;

- provides training which has merit, is appropriately designed to directly influence the work output capability of the individual when training has concluded; and

- generally provides training in a formal, off-the-job, class-room based environment.

Unfortunately, this present style of service provision does little toward developing a system that addresses workplace education and training. According to the Process Manufacturing Industries report, there is a need for this training to be provided with a structured arrangement that is 'accredited, portable and adapted to the needs of the different enterprises and industries' (p. 35). There is a need for the provision of training 'programs which present specialised knowledge to employees and explains its relevance to job and organisational performance' (Benham, 1993, p.36). Thereby 'training people in skills and knowledge that they are going to be able to use on-the-job immediately' (Noone, 1994, p.25), and as Benham (1993) postulates, to continue to extend the individual's acquisition of knowledge, to the application and development of skills, and then beyond discussion to actual application within a real and meaningful context.

2.5 Skill Acquisition

Barry Jones (1990) recognised that in the future there would be a greater need for skilled workers, rather than unskilled workers, who are capable of adapting and changing at very rapid rates. The process of skilling these people needs to be sensitive and flexible enough to permit the trainee to 'acquire those skills by the route which suits them best as individuals and which takes account of their abilities, attainments and experience' (Baylis, 1994, p.23). It is suggested by Billett (1993, p.11) that the best avenue for new starters to acquire this knowledge is through 'learning from other workers (experts) on-site who can do the job' and those who are 'sympathetic to the idea of learning being socially generative' (1993, p.11). His recent studies have found that those who underwent training through other avenues in addition to on-the-job training actually demonstrated strong support for on-the-job learning, and a 'consistent preference for learning in the workplace by undertaking activities and learning from others' (Billett, 1993, p.11) was high amongst all employees in the workplaces studied.

The literature, therefore, supports the view that industry based learning should be conducted in an environment that is relevant and has recency with regard to experience and functional application. As Senge (1994, p.7) explains:

> *To practice a discipline is to be a lifelong learner on a never ending development path. A discipline is not a 'subject of study'. It is a body of technique, based on some underlying theory or understanding... that must be mastered and put into practice.*

Pundits of Behaviour Modelling contend that skill transfer 'improves if the skills being practised are highly similar to those used on-the-job' (Ferguson & Smith, 1988, p.6); and the use of these 'informal learning settings, such as workplaces, provide an optimal place for the acquisition of robust and transferable vocational skills' (Billett, 1993, p.4). The value of any such informal training setting can be ascertained by applying the test of whether or not the newly learned skills are properly used on-the-job, by using competency based assessment techniques.

The 'case study' method which employs a similar method of learning experience to those that are proposed by the cognitivists, comprised of the Gestalt group (Smith, 1992, pp.20-23), which includes psychologists such as Bruner, argued that learning was individual, experiential and the result of interaction with the environment. They emphasised the 'importance of insight, thinking and perceiving the whole picture or *gestalt*' (James, 1987, p.288). Their ideas further relied on the belief that adult learners really do want to question, test and in some way develop their own framework, in which the knowledge rests, and that it is applicable to their own every day lives and experiences. Knowledge must be organised, information encoded and processed, and the learner then becomes intellectually ready to find the meaning in the tasks. The learner is able to think through the possibilities and is intrinsically motivated to find the answer. The case study method is used to

> *introduce learners to the theoretical principles and techniques that may provide potential solutions to the problems. They harness the power of experiential learning methods that make learning challenging and interesting* (Einsiedel 1995, p.50)

and by doing so enable learners to place the new information in a context that is 'similar to those used in real-life situations' (p.50). The trainer provides the suitable learning environment and resources then, by observing the participants during these case studies, is able to evaluate and provide encouragement and feedback that is appropriate and relevant to the existing situation. This is basically the principle that has been used to develop the existing 'flexible' delivery methodology being employed in workplace environments.

The drawback to this method of learning, in the context of the research, is that there is a heavy emphasis on learner initiated activity. The individual is responsible for taking an active role in their learning - a self directed approach. Notionally, an excellent principle from which to provide learning experiences, however, for people who have very little exposure to learning, or who may have language or reading difficulties it may present as a very difficult task to manage and undertake their own training.

It must be remembered that in some cases environmental barriers can also contribute to unsuccessful skill transfer. This generally occurs immediately after the training, 'when employees return to work and try to assimilate the new skills and ideas into their work environment' (Holcomb, 1994, p.108) and find they are unable to contextualise and apply the newly learned concepts. Even so, much of the training done by the major training providers is still classroom and theory based, with little, if any, contextual relevance to the learner's actual workplace and training which rarely provides an opportunity to practice any newly acquired behaviour. In a report pertaining to the Training Commission's (UK) survey on employees' training activities Sloman (1989, pp. 38-41) asserts that almost half of employees' training, measured by either volume or cost, was conducted at the normal workplace. He further asserted that on-the-job training in the UK was a preferred method of delivering new skills to employees. Australia, however, is not as disposed towards this behaviour and 'indications are that there is significantly less training, using international comparisons, being undertaken by Australian industry in any form' (Hosie, p.58). The continuance of this

classroom-based style of instruction must be questioned when considering whether 'theory is sometimes valid as a memory aid, and [whether it] often has little to do with the real world application of skill and thus adds nothing to the value trainees get from training' (Ferguson & Smith, 1988, p.7).

A further strength of learning activities within workplace settings is that the novice is able to see both the process and the outcome of the actual task that they are being skilled to carry out. They have ready access to the tools, equipment and staff and work in the environment that sets the standards of work performance and behaviour. The benefit of this natural and authentic learning setting is that it provides experiences which develop procedural knowledge and higher order thinking (e.g. problem solving).

Role modelling, or behaviour modelling has the trainer provide a model for imitation by the learner, providing the information in such a way that the learner is able to utilise the process, understand the reasons for the behaviour and in most cases, re-apply the information and behaviours to another similar application - problem solving. The learner is able to receive immediate and accurate feedback, from both the role model and by comparing their efforts in relation to the modelled behaviour that they had previously observed.

Hodson et al (1992, p.284) further explored behavioural learning principles in relation to 'new starts', stating that there are limitations in the employees' work understanding and that there is a

> *limited reliance on highly skilled workers in the new starts ... workers are asked to focus on product quality but are not encouraged to learn in depth about the machinery and its maintenance. The skills that workers can expect to achieve ... are thus limited and product specific.*

This method of identifying and providing training is considerably different to the current training regime that is provided by institutionalised training providers. Bunning (1985, p.6) further supports this rationale when stating:

> *The amount of learning that takes place during the person's working life is of critical importance and most of this will be as a result of*

experience and informal reflection, rather than arising from the occasional formally organised learning experience.

Instruction undertaken in theory dependent classes tends to be concerned with the development of propositional knowledge, and at best can claim a tenuous link to true skill based learning through the practical experiences offered within the learning environment. Such methods of instruction include directive learning (didactic) which is regularly used in a lecture style setting (e.g. universities) and relies on the ability of the learner to absorb the relevant information. The locus of control remains entirely resident with the lecturer. It is described in CCH Australia (1992, p.11.220) as 'a theory of instruction. It involves subject matter being presented by experts ... to dependent learners'. It becomes the responsibility of the learner to absorb and contextualise the material, and then find a method of applying it to the real world. There is little interaction between the deliverer and the recipient who assumes a passive role in the learning experience.

As TAFE, the provider, moves towards using Flexible Delivery it will need to ensure learning is tailored to suit the needs of the client. This method of training represents a pedagogical philosophy which is based on the assumption that learning will improve if it is constructed to suit the way students prefer to learn by using an open approach to the delivery of the vocational education. Flexible delivery further 'reflects a social justice philosophy which supports the rights of all members of society to have access to quality training' (Misko, 1994, p.4). Some of the learning strategies include:

- self paced learning;
- integrated off-the-job and on-the-job learning;
- competency based learning;
- problem based learning;
- resource based learning; and
- flexible learning

Flexible learning is a method of delivery being used by the TAFE system. The establishment of this flexible learning environment is 'based on adult learning principles where learners have to take responsibility for their own learning' (Johnston, 1995, p.1). It is a shift from 'teacher-centred to client-centred learning [which] will require versatility among staff who specialise in flexible learning' (Anderson, 1995, p.4) and 'the users of that facility, staff and students, will have to acquire the additional skills necessary to use the facility effectively, efficiently and safely' (p.4). This learning environment is complex and can be difficult to negotiate and daunting for someone who has had limited success or experience in an academic world. As identified by Yemm (1995, p. 3) 'they [the teachers] needed to take an approach which would gently guide learners into independent learning' because many of their 'students haven't studied for many years' (p.3). She went on to say that many students dropped out because of the difficulties they experienced in this type of learning environment.

The impact of technology on occupations, the tendency of employers to continue to set higher educational requirements, and the need for employees with specialised training have made vocational preparation important. Part-time programs are becoming essential in order to ensure occupational competence among workers and to provide mobility in order to overcome the effects of job obsolescence.

In the United States of America (USA), vocational education programs are conducted in public secondary schools and community colleges and are financed in part by federal funds. Other programs, which are work specific, are conducted by the relevant enterprise group, and usually focus on particular interests or skill areas. These vocational programs are generally administered by an equivalent body to the TAFE system in Australia, and

> the scope of vocational education is broad, ranging from occupations requiring little skill to those requiring a high degree of skill and scientific knowledge. Jobs requiring minimum training are not generally included in formal programs because the necessary skills can be readily learned on-the-job (Brickman, 1993).

2.6 The Tools for Skilling

Flexible learning is a new tool being used by many training providers in an attempt to *bridge the gap* that exists between these traditional vocational training methods and what is now believed to be needed. However, what in effect has happened is as Tooth (1994, p.25) discusses, the *new vogue* has replaced a poor process with an even worse approach. Flexible learning essentially places the responsibility for the learning process on the employee, they are responsible for the choice of delivery method (study mode), environment for study and assessment methods that they undertake. This, by inference, and as Misko (1994, p.5) indicated, potentially places the learner in an isolated learning environment where the removal of the opportunity for interaction, the chance for development of a theme or discussion have been removed and are now more remote from the learning environment.

Concerns about various information transfer procedures are evident, Ferguson and Smith (1988, p.7) discussed Behaviour Modelling and indicated this technique could place the instructor in a perceived parental role, teaching by 'show and tell' through a process which relies on an inductive method of teaching. It could be argued that the learner is placed in a child role, therefore, neither contributing to nor questioning, and remaining largely passive until it is their turn to re-enact the process. What is interesting, however, is that similar methods of learning are lauded by the Industry Task Force Report (1995) which recommended the use of flexible learning techniques and mentoring/advising relationships as tools for developing small business managers.

In an editorial address, the Australian Institute of Training and Development magazine (1989, p.13) argued that:

> *many government training regulatory policies and practices are dis-incentives to training. Training provided outside of the formal institutional systems (Universities, CAE, TAFE, Schools, etc.) has little or no value outside of the enterprise or government agency in which that training was provided.*

The Institute of Training and Development further contends that there is a high level of resistance to recognising non-institutionalised training and that 'industry or enterprise based learning is not portable and it is usually not recognised by government funded and regulated institutions' (1989, p.13). This position highlights the need for 'industry level training arrangements, co-ordinated perhaps through a national scheme of competency based accreditation, [which] may be the most appropriate path for Australian employers in such a deregulated environment' (Smith 1992, p.73). This approach to training, at industry level, is encouraged and supported by the already well co-ordinated union movement, and is demonstrated by the number of enterprise agreements that are including workplace training and skilling as an essential component of the contract with employers. The Australian Vocational Certificate aims to 'through a combination of education, training and structured work experience, ... help the trainee develop competence in key areas for employment' (Thoeming, 1994, p.5) and attempts to recognise competencies that individuals may acquire through prior learning or experience, and similarly recognise the importance of the skill, competence or experience being contextually correct.

There is a need for consumers, due to regulatory controls, quality requirements and client perception, to have various training courses accredited and in some cases aligned with recognised certificated award systems. Most accreditation of programs is done through the National Training Board (NTB), which ensures standards of delivery and course content are appropriate for the qualification that will be awarded. The requirement for accredited training provision imposes limiting factors upon the provider and will have an impact on who, when, where and what material can be provided and to some extent at what time this can be accomplished. This desired skill formation therefore intervenes and affects the service provision, style of delivery, content, cost, assessment procedures etc. according to the need of the consumer. It will not be a factor in some instances, but must be considered once certificated training is required, as is the case with the organisation being studied.

It is important that the concepts of skill formation be explored and understood, thereby establishing a connectivity between the traditional concepts of training and formal education and the capability to respond to changes in the workplace. But more importantly, provides somewhere that learning is more than just an incident in an individual's life or work history, a part of the process of their continuous and ongoing development. This is discussed by Ford (1990, p.9) when he examined the holistic concept of skill formation, and determined that:

> *continuous on-the-job learning, and recurrent off-the-job learning are quite different from on-the-job and off-the-job training. The latter tends to be perceived and practised in terms of truncated front end models of formal training, that is a concept of all education being compressed in the first 20 years of one's life; and tends to ignore the potential educative role of work organisation.*

What Ford advocates is that this skill formation is something that embraces and integrates a true flexible delivery model by incorporating such training methods as formal education, integrated off-the-job and on-the-job learning, self paced learning and personal development.

For skill formation to be optimised it is necessary to ensure that any training materials are constructed in a manner that will provide the best learning experiences for the learner. The instructional design model, as advocated by Dick and Carey (1990, p.vii), utilises two methods in which instructional design may be used. Basically the training program must be either knowledge, or product based, and should incorporate and reflect the true situation in which the learner is positioned, in respect to their current knowledge and skills. The sequencing and delivery of the information must, as closely as possible, align with the processes that exists in real life. The evaluation tools need to measure against the actual desired job performance and the training program's behavioural objectives. In effect the evaluation must be able to measure the competencies that the individual has, and are related to the workplace tasks and activities for which he/she has been trained.

What each of these frameworks shows is that there are many methods of designing and delivering instructional material for the adult learner. They also

show that there is a need for careful consideration about client needs before attempting to deliver a product. Some of these needs include the preferred learning styles of the people, the format of the instructional material and the site for delivering the product. Various methods of delivery are used in work environments which can be categorised into off-the-job and on-the-job training. The approach used for information delivery for each of these models is indicated by their respective titles. Off-the-job training (vestibule training) is valuable in the sense that the individual does not have to leave the work site to participate in the learning and they are able to study with their peers in an environment that they both know and understand. Some commonality exists between this study method and on-the-job training, in the sense that the individual does not totally leave the influence of their peers or the workplace environment. The mentoring process applied during 'on-the-job training exposes people to the constantly changing demands of the workplace, while helping them develop an invaluable sense of achievement and responsibility, as well as vital social skills' (Von Brachel, 1994, p.37). Another important factor is that the information and skills are being developed in a contextual framework which relates to the job needs.

Depending on the organisation's needs the composition of the training materials, service provision, style of delivery, content, cost, assessment procedures, reporting etc. of the training program will vary. This will impact on the relationship between the provider, the employer and the end user, the employee. The provision of, or requirement for any specific type of service delivery has a contingent effect upon the composition of the training content and delivery method. What must be remembered during this contract negotiation period (whether internal or external) is that 'for many people, self study - no matter how elegant or avant-garde the means of instruction - just doesn't work very well, learning must be supported by a live facilitator' (Delaney, 1995) and that any other 'attitude might exclude from organisations people who could contribute if they weren't defeated by a learning approach that is inappropriate for them' (p.45).

Perhaps the most controversial argument that exists in educational circle relates to these decisions, and is presented by James (1987, p.287) as:

> *should education consist of the transmission of a body of knowledge, the concepts and principles of the disciplines? Or should it be more concerned with the development of the intellectual skills enabling people to learn for themselves or become better or more creative problem solvers? Is content or product in education more important, or is it learning about the learning process itself which should take precedence?*

What is beginning to emerge is that the organisation in question, having recognised the need to train their new start employees, may in fact be misguided in their efforts at this early stage of employment. There are a number of questions that need to be examined to determine whether *'Vocational Education can be better Structured to Facilitate the Acquisition of Job Related Skills'*.

2.7 Assessment and Validation

To ensure the validity and effectiveness of any of these training programs there is a need to apply some form of assessment tool. Fundamentally, assessment is the process of collecting and evaluating the available evidence (related to the training) to establish whether an individual has attained a desired level of competence to satisfy the criteria for awarding credentials. As defined by Atkinson, (1994, p.62) the measuring of training should be done 'on the basis of whether employees consider the training relevant, whether it adds value to what they are doing and what they are measured on, and the skills, knowledge and abilities of the people involved in the learning effort'. This process would then satisfy the need of being able to guarantee consistency, validity and reliability. It needs to be flexible and capable of adapting to the needs of the learner by varying the assessment formats to suit the delivery, at which time it will necessarily provide an added dimension of validity to the learning process.

Consequently, it would be advantageous for these early employment workplace programs to be designed, as suggested by McIntosh (1995, p.46), in such a way that:

> *staff members stay in close contact with learners and their managers to ensure that performance improves as predicted. Staff also gather*

feedback that they can use to improve the way they design, construct, and deliver their programs.

If this form of assessment is competency based, then feedback can then be immediate and real and will have validity when coming from a perceived expert who is capable and has the demonstrated ability to execute the required job skills. This open and supportive relationship needs to be combined with appropriate programming design to ensure there is competency based program delivery and assessment that is applied at the workplace, which will then ensure that the training program relates totally to the workplace activities and is assessed by a workplace assessor.

McIntosh (1995, p.47) suggests that other advantages of using this methodology include 'lower overheads, [and] work-site delivery [which] enhances teamwork, brings line managers into the process, and helps employees transfer their training to their day-to-day work'.

TAFE programs are making this transition, in the evaluation process, and are now generally using competency based designed and delivered programs. Many of these programs rely on workplace assessors to execute the validation activities.

These workplace assessors, as discussed by Misko (1994, p.25), are individuals who are trained in the process of determining whether another has attained the competencies to fulfil the required standards as specified by the awarding body. Some comparisons should be made between them and the using of resource centre based assessors. The workplace assessor has a thorough understanding of the activity being evaluated, both in work based context and procedure, is known by the people undertaking the training and has access to resources based at the workplace to ensure the trainee has the best possible opportunity to demonstrate competence. In comparison, a resource centre based assessor that is removed from the site, has little understanding of the idiosyncrasies of the workplace, has

limited access to workplace resources, and presents as an authoritarian figure rather than a peer.

Competency based training is the procedure utilised to enable the attainment of and ability to demonstrate a particular suite of knowledge, skills and attitudes to meet a pre-determined standard of performance. It follows that the assessment procedures for this then require an outcome focused activity or result, that relies on the individual performing skills or producing a pre-determined product at a particular standard. The underlying belief is that under this form of assessment there is objective evidence to support the claim that the skills have been mastered.

2.8 Skilling in the Workplace

Traditionally training has been used as one of a number of interventions to support organisational behaviour. In recent times it has also been utilised to drive change in organisations, and has been used effectively in radical ways. Information contained in the Reform and Bargaining at the Workplace and Enterprise Survey (Short et al, 1994) indicates that many organisations (surveyed) are in the process of trying to implement interventions that will enable them to improve their 'bottom line' by focusing on aspects that will support their manufacturing outputs and also reduce the cost of producing goods. From the reference group it is possible to establish that these organisations have addressed many areas which include:

- management/management systems;
- the organisation of work;
- the relationship between employees and their work; and
- multi-skilling.

By implication, many of these changes will be dependent upon the individual learning and adopting new skills and competencies that are related to their workplace activities. Many parallels and similarities are apparent, when

considering the undertakings and results that are depicted, in the National surveys and those that have been identified in the enterprise that has been the target of this study.

Multi-skilling is generally regarded as the training of the individual in a range of skills and competencies which can be done on-site or through formal courses that are relevant to the employee's work, and the further training of the individual to perform a variety of skills by breaking down demarcation barriers. Essentially what this training provides is a workforce that is equipped to respond to future demands within the organisation across a wide range of skill areas.

As depicted in Table 2.1 and Table 2.2, information contained in the Reform and Bargaining at the Workplace and Enterprise Survey (Short, 1994) which was gathered in surveys in 1992, managers were asked which of a number of changes had been implemented in the preceding 12 months. The response indicated multi-skilling to be the most common; this occurred at 59 per cent of the worksites. It is apparent from the results that of all skilling initiatives, the greatest benefit has been derived from the elevation of the skill levels of employees across the work force.

Table 2.1: Changes Implemented in the Last Year (1992)

	Type of Change	% of workplaces
1.	Multi-skilling of some new employees	59
2.	Introduction of major new technology or equipment	40
3.	Introduction of major new training programs	38
4.	Reduction in the number of people to do some jobs	36
5.	New management systems	36
6.	Systems to measure employees productivity performance	28
7.	Change in the number of job classifications	27
8.	Major restructuring of work tasks	34

Source: Bargaining at the Workplace and Enterprise Survey, 1994. AGPS Press, Canberra.

Table 2.2: Types of Changes Introduced, by Sector (% of Workplaces)

	Change Category	Private	Public	All
1.	Work Organisation	69	89	75

	Change Category	Private	Public	All
2.	Management, Management Systems	51	62	54
3.	Structural	40	47	42
4.	Employment Pattern	36	46	39
5.	Training	38	38	38

Source: Bargaining at the Workplace and Enterprise Survey, 1994. AGPS Press, Canberra.

Work organisation changes - include major restructuring of work tasks, change in the number of job classifications, multi-skilling of some employees, the introduction of major new technology or equipment, and other work relationship alignments. These undertakings generally take a considerable period of time and effort to implement and to sustain these new work configurations. In nearly all instances these types of work changes incorporate training for the people involved in the re-organising of their work.

Training arrangements - include the introduction of major new training programs, such as competency based training. This may also include the way training is conducted, the relationship with the providers and the assessment procedures that are used.

Table 2.3: Impact of Change on Selected Outcomes at Workplaces in 1992 Where Change had Occurred (% of Workplaces)

	Outcome	Increase	Decrease	No Change	Can't Say
1.	Workplace Productivity	61	3	35	2
2.	Absenteeism	9	21	69	2
3.	Skill Levels	70	0	28	2
4.	Profitability at the workplace	37	11	49	2

Source: Bargaining at the Workplace and Enterprise Survey, 1994. AGPS Press, Canberra.

In a later survey (conducted in 1994), it was discovered by Short (1994, p.33) that in 'the majority of workplaces where changes occurred, managers indicated

that productivity, quality and skill levels had again increased'. It may be further postulated as a result of these changes and initiatives 37 per cent of the workplaces were able to enjoy an increase in profitability at the workplace.

To attribute all these gains to training would be unreasonable, but it would be fair to assume some components are contributing to the success both in the changes achieved and the resultant productivity outcomes which can be linked to the interventions that were put in place for the human resources. It is apparent in many cases that the companies (36%) had reduced the number of employees needed to carry out this work. This outcome may well be supported by the introduction of new technology and new equipment (40%) to off-set the need for these people. Interestingly, most of these interventions required training in some form or another to implement and support the planned changes. In 38 per cent of the companies training programs were implemented, however, detailed information about the type, quality, target groups or delivery methods and the costs involved in achieving their outcomes is not available.

2.9 Implications

Vocational training programs are not always structured to support the long term application of imparted skills, bearing in mind that traditional training (TAFE) methods employed are designed to deliver large slabs of information, that are not necessarily relevant to the individual's immediate needs or related to their work activity.

When taking this into account and considering the current methods of delivering most vocational training programs, there appears to be a high degree of probability that individuals will have either not totally learned or have substantially forgotten much of the information related to their work by the time they need to use it.

There is a need for less emphasis to be placed on self discovery and more credence given to Vygotskian theory (Wood, 1995, pp.12-16) which asserts that:

> *novices can often perform tasks with help when they cannot handle them alone is of central importance in the theory. The 'gap' between assisted and un-assisted performance, the zone of 'proximal*

development' or 'region of sensitivity to instruction' is where
important learning takes place....[hence] the learner acquires
expertise in learning how to learn by virtue of the ways in which
others assist them in learning.

Thereby ensuring that the new start learner has an optimal environment for learning that is not only well structured but supports the notion of individual learning.

Training, change management, systems re-engineering and workplace refinement are tools that are being utilised by manufacturing and other industries. The Just-in-Time method is one such instrument that has been introduced in recent years. The basic principles of this system are that every component required in the manufacturing process is delivered to the assembly line 'just in time'. This removes the cost of storing volumes of componentry and also having large sums of money invested in stock that is dormant. In more recent times this principle has been applied to androgogical (adult learning) practices. In the training sense 'the employee learns only what is useful on-the-job, wherever and whenever it is required' by providing the 'users with easy access to information and explanations about a specific problem in real time ... when they encounter the problem' (Blais & Dallaire, 1994, p.31). Further justification for this behaviour and activity base is explained by Harrington (1991, p.8) when he observed that:

> *if people do not apply the information presented to them in the first*
> *week after they attend a class, there is only a 20 percent chance they*
> *will ever use the technique or methods taught.*

A considerable amount of money and time is invested in the development and delivery of the training resource, but more importantly, there may be an unnecessary investment of time and effort in exposing the learner to materials that they will either not utilise or apply inappropriately. As Harrington discussed, there is a strong argument supporting the need to ensure that the training provided to the individual is both recent and relevant to their immediate needs.

The literature review has revealed that there is a need to move away from traditional training methods (Dawkins & Holding, 1987, p.iii) and move towards

programs of development that reflect the needs of adult learners by providing relevant, structured and supported on-the-job learning experiences (Benham, 1993, p.36). This training should then move the trainee into the zone of 'proximal development' (Wood, 1995) and provide opportunity for the trainee to use the new found knowledge immediately (Noone, 1994, p.25), or soon after, the transfer of knowledge occurs.

Chapter 3 RESEARCH METHODOLOGY

3.1 Research Process

The primary role of this research is to examine the function of the dependent variable - vocational training, with a view to determining its value to a new start employee in an organisation.

Sekaran (1992, p.31) provides a useful general model of a research process for basic and applied research. This model clearly illustrates the progression from a researcher having a vague idea of a potential problem worthy of research (managers and employee conversations), through formulation of a working hypothesis based upon observation, and the review of the work of others (literature review) which may usefully contribute to the formulation of a testable hypothesis or set of hypotheses. In this research the hypothesis is tested using a survey designed specifically for the research topic. Analysis of the survey results provides answers to the research question together with explanations which can be verified, and when considered in conjunction with the information available in the literature review, a number of conclusions and recommendations can be made which will add to the body of knowledge in this field of study.
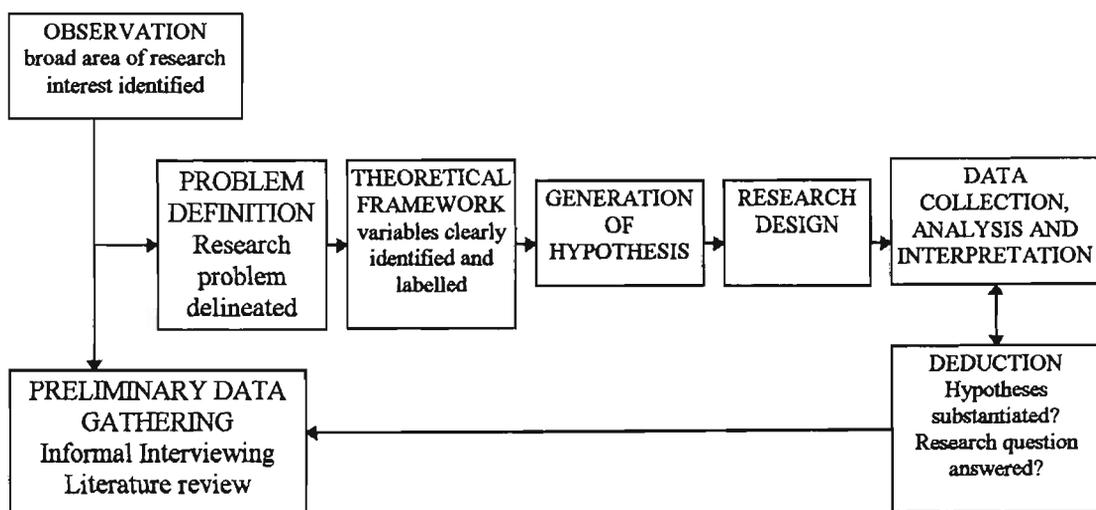

Figure 3.1 The Research Process for Basic and Applied Research

Source: Sekaran, 1992, p. 31 (adapted).

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An examination of the flow chart (see Figure 3.1) clearly depicts the process of development of the hypothesis and the subsequent research and testing that has evolved from the initial observations. Following Sekaran's (1992) model, the research included the following steps:

3.2 Hypothesis Generation

Observation

As mentioned in Section 1.2, an interest in developing more appropriate training, especially for new arrivals in the workplace, came about as a result of experience in industry and discussions employees and their supervisors.

A strong personal interest and experience in education over a number of years motivated me to pursue the matter further.

Preliminary Data Gathering

Having decided on the area to be researched, primary and secondary data were gathered to define the research problem.

Several companies where I had previously been employed were approached to gauge their reaction to research work being undertaking within their respective workplaces. One of these organisations was amenable to the proposition and some preliminary discussions (informal interviews) were conducted with staff. These staff members included managers, supervisors and production line employees.

A literature review was undertaken to establish whether this field of study had been investigated and also to determine the availability of supporting research material. A clearer idea regarding the topic was achieved through this process and an opinion whether the investigation would be worthwhile being conducted was formed.

Problem Definition

On completion of the interviews and the literature review, a refinement of the problem (from its raw conceptual stage) was undertaken. At this stage the problem was defined as being related to the delivery of training and/or education to new start people within the workplace. The issue had not been sufficiently refined to support the development of a theoretical framework and required further discussions and unstructured interviews with people to establish the real issues. These emerged as being 'existing vocational training can be better structured to facilitate the acquisition of job related skills by new employees'. The value of this to organisations being improved enterpise effectiveness.

Theoretical Framework and Generation of Hypothesis

The development of the theoretical framework enables the identification of the relationship between the variables (Figure 3.2) and provides a clear picture of the issues.

Independent Variable   **Dependent Variable**

Intervening Variable
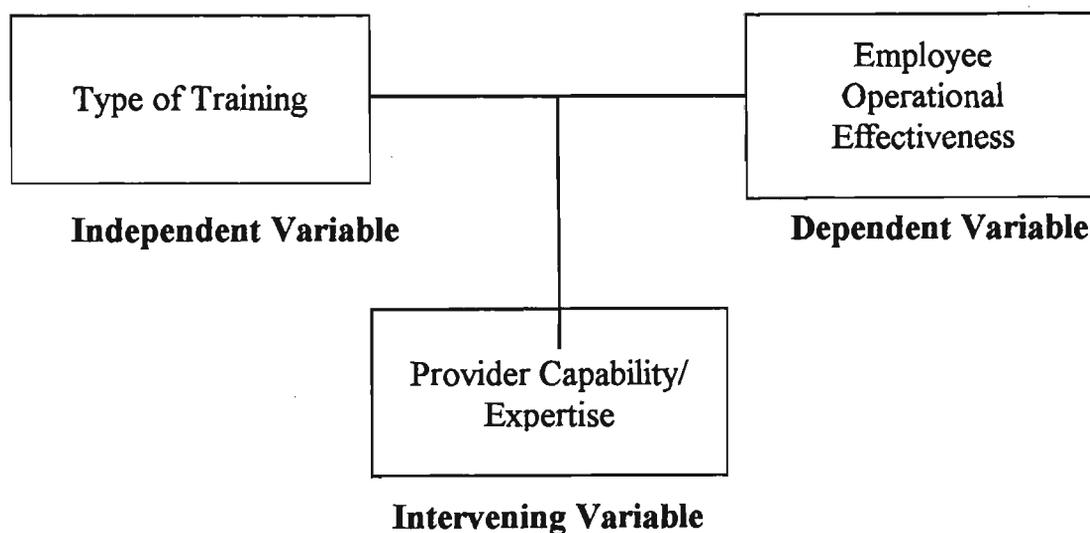
Figure 3.2 The Variables

From this conceptual framework the hypothesis was developed and a methodology for conducting the research was designed. The population to be examined was comprised of managers, supervisors (team leaders), and production line employees. The production line employees that were targeted consisted of new start employees.

Due to the nature and diversity of the groups to be examined it was apparent that either:

- interviews; or
- a survey was the most appropriate method to collect the information required. A survey in the form of a structured questionnaire was considered the optimal way to undertake the data collection. Given that this study was to be conducted in the natural environment of the organisation and have 'minimal impact on the normal flow of events' (Sekaran, 1992, p.102) it appeared that this would be the most effective manner available to collect the data.

Some limitations that affected the research methodology were language and writing skill barriers; time constraints did not allow taking employees from their workplace for interviews and, since informal interviews had already been undertaken, it was felt that a more formal data collection method may add credence to the outcomes.

3.3 Data Collection, Analysis and Interpretation

Sekaran (1992) states that observation, questionnaires or interviews form the three main methods of data collection. As suggested by Sekaran, interviews were used to define the concepts and observation of behaviour had already led to the identification of the research need.

The final questionnaire was developed after discussions with managers, information from literature reviews and feedback from the University's Ethics Committee. However, two questionnaires were used to collect all data. The first was a draft questionnaire which essentially contained all components of the final document, but required some revision. This document was applied to a cross section of the three groups and could be considered to be a representative group. Where questions have not altered, data collected from this trial have been included in the final data summary.

The final document provided the necessary refinements and was applied to all groups. This data collection was carried out by distributing the questionnaires

through managers and supervisors. The targeted groups were invited to complete the survey (they had previously been told of the questionnaire and were pre-disposed towards completing the document).

A total survey population of 30 people was used. This number (N=30) has validity and Sekaran (1992, p.253) states that N=30 (population size) and S= 28 (sampling size) are acceptable for this process. Since the true population size of the population sampled was 30 it was considered expedient to survey all parties.

A comparison and evaluation of the data between responses from three distinct groups within the survey population was necessary. These included:

- *Group 1:* new starts who were undertaking structured, formal and accredited vocational training at the workplace, but primarily in an 'off-the-job' format;

  Group 2: new starts who were undertaking structured training at the workplace, but only in an 'on-the-job' format; and

- *Group 3:* supervisory group, consisting of line managers, and team leaders, who were canvassed to provide additional information regarding the workplace, training programs and providers.

All data was entered in to an Excel spreadsheet program and a comparative analysis of the data was carried out. Consideration was given to data from the survey and the information gleaned from the literature review. All assumptions and hypotheses were considered and an interpretation made which led to an answer for the research question.

Chapter 4: **FINDINGS**

In Chapter Two several research questions were identified; Chapter Three described the methodology used to collect the data to examine them. The methodology to examine this data was also discussed in Chapter Three. This Chapter is organised around three major topics, which are substantially represented by sub-hypotheses which provide the material to support any assumptions or observations that will be made in Chapter Five.

4.1 Results

The survey results are broken up into several areas. This is to distinguish between management and worker groups' responses to the various questions.

The managers' group is comprised of five (5) respondents who are representative of all supervisory groups consisting of line managers and team leaders, who were canvassed to provide additional information regarding the workplace, training programs and providers.

The worker group is comprised of thirty (30) people and divided into two (2) distinct groups which are:

- *Group 1:* new starts who were undertaking structured, formal and accredited vocational training at the workplace, but primarily in an 'off-the-job' format; and

- *Group 2:* new starts who were undertaking structured training at the workplace, but only in an 'on-the-job' format.

The data results have been arrange to reflect these groups.

4.1.1 The Managers

Results in this section are for responses from five (5) managers, who between them supervise one hundred (100) employees.

To establish the requirement for and validity of any training it was considered necessary to firstly examine whether training for the new starts is essential to

ensure their capability to execute the activities related to the manufacturing processes. A number of subordinate questions (See Appendix B and Appendix C) addressed the statement: *If the manufacturing processes are dependent upon training, then the training will be undertaken.* This assumption was supported by the responses elicited from the management group.

Table 4.1 Process Dependence on Training

	Yes	No
Is the manufacturing process dependent upon this training?	100%	0%

Source: Appendix: B 2.03   n = 5

These results indicate that each manager believes that the training is important in relation to the manufacturing process in their area and it is an essential component that directly contributes to the outputs of the workplace. The managers were asked whether the employees in their respective areas of responsibility were involved in some form of training or professional development.

Table 4.2 Training Participation

	Yes	No
Does your Department undertake training?	100%	0%

Source: Appendix: B 2.01   n = 5

All five managers confirmed that their respective departments conducted training which demonstrated a commitment to this process. Supplementary questioning established that the managers believed the training should be transferable to the workplace and that these training interventions should contribute to better work practices and higher productivity.

It is also apparent from further questioning that they believed the training currently being undertaken could be delivered at a later time and would be better delivered in another format. It follows that the hypothesis '[that] *If the*

manufacturing processes are dependent upon training, then the training will be undertaken' is therefore supported.

Table 4.3 Value of Training

	Yes	No
Are the training outcomes readily transferable to existing work conditions?	100%	0%
Do your employees need to have this qualification to do their job?	0%	100%
Does the training influence productivity and quality outputs of your employee?	100%	0%
Do you believe the trainee better understands the work processes because of this training?	100%	0%
Must the trainee complete this training to carry out current work?	0%	100%
Could existing training be eliminated by on-the-job training?	100%	0%

Source: Appendices: B 2.01, 2.03, 2.07, 2.16 & C 3.04, 3.05, 3.06, 3.08.   n = 5

The value of the training interventions needs to be gauged to determine which method of design and delivery of the training is the most effective for the task at hand. Early indications showed that upon commencement of employment, the immediate application of structured and elongated, formal studies were probably inappropriate. It could therefore be said: *Formal training is not necessary to provide the new start employee with the skills to execute their work.*

To test this hypothesis it was necessary to determine when the organisation felt it was appropriate to apply training interventions to the new start employee.

Table 4.4 Timing of Training

	A.S.A.P	1 Month	2 Months	3 Months	6 Months
When does the organisation need to have this training provided ?	0%	0%	0%	0%	100%

Source: Appendix: B. 2.04   n = 5

Further questions were applied and are included in Appendix B and Appendix C. The managers indicated that formal training is not needed before at least a period of six months of employment has passed (Appendix B 2.04), but they also indicated that the employee, in most cases, used the acquired knowledge and skills in the early stage of their employment (Appendix B 2.08). Although managers recognise that the training is an important and fundamental part of the manufacturing process (Hypothesis 1), they further contended that it could be undertaken at a later time (Appendix C 3.07) and was not needed until after the six month time period has elapsed. This is an unexpected finding contrary to current views on training practice, requiring further investigation or research to validate it. To continue to examine the issues pertaining to this hypothesis it was necessary to determine what impact skill and knowledge acquisition had upon the work processes.

Table 4.5 Influence of Training

	Yes	No
Does the training influence productivity and quality outputs of your employee?	100%	0%
Do you believe the trainee better understands the work processes because of this training?	100%	0%

Source: Appendix: C 3.04, 3.05.   n = 5

Managers were asked to comment on the skill and knowledge training given to the new start; recognition was given that this training provides an enhanced ability to carry out the work functions. Changes in productivity or quality outputs were not formally measured during this research, however, each manager felt sure, from anecdotal evidence, that there was a direct relationship

between training and outputs. Although this appears to be supportive of the current training provision, it must be read in context with the total learning experience that the participants underwent. Perhaps exposure to certain information in this manner will contribute to the learning, but as postulated by Billett, (1993, p.4) 'informal learning settings, such as workplaces, may provide an optimal place for the acquisition of robust and transferable vocational skills' so there may be a better and more appropriate way to transfer the skills.

To determine the impact that this training may have upon the work skills and knowledge, it was necessary to evaluate the extent that the content of the training was aligned with the user needs. A number of questions were used and are included in Appendices B and C.

The managers indicated that the training that they currently purchased was provided by an external provider (Appendix B 2.02 and 2.06) who determined the format (Appendix C 3.02) and content of the training material (Appendix C 3.03) and that the training was provided on site (Appendix B 2.05).

Further questioning established that there was no consultation regarding the employees' training needs (Appendix C, 3.10, 3.11, 3.12 and 3.12a) and any changes had been made by internal trainers during delivery (Appendix B, 2.11, 2.12, 2.13 and 2.14). The management group indicated they were concerned that they had not been properly consulted, as consumers, to identify or modify the training to suit their particular user needs. They believed that the training program (which is centred on an adult learning model, 'flexible learning') was not sympathetic to the needs of their employees, or their manufacturing activities.

As Table 4.6 below shows, the managers perceived the training, in line with the Process Manufacturing Industries' findings (p.19), to be too industry generic and to specifically deal with the issues related to the enterprise work environment.

Table 4.6 Consultation

	Yes	No
Does your current provider consult with you regarding the employees' training needs?	0%	100%
Have there been any modifications to the original material to suit your conditions?	0%	100%
Was the training changed to suit the employees' needs?	0%	100%

Source: Appendix: B, 2.11, 2.12, & B, 3.10.   n = 5

It should be noted that the industry in which the enterprise is grouped has a diverse mix of manufacturing activities that generally are bonded together because they use the same raw materials.

Responses, as shown in Table 4.6, suggest that the providers' ability and willingness to deliver more company-specific training could be questioned. All respondents indicated that no consultation, modification of training materials or adaptation to specific employee needs had occurred.

Other questions determined that the managers felt another provider could deliver similar training (Appendix C 3.01), but they wanted/needed to provide a qualification for their employees at the end of the training (Appendices B 2.15 and 2.17).

Table 4.7 Training

	Yes	No
Do your employees get a qualification at the end of training?	100%	0%
Could another party provide similar training as the current provider?	100%	0%

Source: Appendices: B2.15 &2.17; C3.01.   n = 5

Although a number of responses that indicated dependency upon the formal training; there is a substantial body of information that indicates the employer group and employees see value in the training but do not feel it is necessary to support the work activities. Therefore as a result of answers tendered it may be

said that the hypothesis *'Formal training is not necessary to provide the new start employee with the skills to execute their work'* is therefore supported.

To establish whether *'existing training methods can be changed to enhance skill acquisition at the commencement of employment'* it is necessary to compare existing formal training methods with the perceived best method of delivering training to the new start employee.

From the findings published by Process Manufacturing Industries (p.19) it was apparent that they felt better arrangements could be made to ensure training reflects the needs of the industry user groups. It is clear from the enterprise managers' comments that they felt that existing formal training was un-necessary at the new start phase and that there were some concerns about the appropriateness of the material provided.

It can be said that there is sufficient evidence from the managers to state that *'existing training methodologies can be changed to enhance skill acquisition at the commencement of employment'* at this time.

4.1.2 Workers (Group 1)

Results in this section are responses from workers (group 1) who undertook structured, formal training. Several questions were designed to determine the base skill levels, of the new start, when entering the workforce of this company (See Table4.8). The information was collected from each employee and generally supported by the relevant managers, who made observations regarding the individuals' resident skill levels at the time of commencement.

Table 4.8 Skill Levels

Relevant skills at time of starting at workplace	No skills	Few skills	Some skills	Most skills	All skills

Relevant skills at time of starting at workplace	No skills	Few skills	Some skills	Most skills	All skills
Relevant skills	25%	12.5%	50%	12.5%	0%
Other skills	12.5%	31.25%	18.75%	18.75%	18.75%

Source: Appendices: A 1.01, 1.02 & C 4.01.   n = 18

It is apparent, from the responses elicited from the workers, that most people believed they had some, but not all, of the relevant skills for the job when employed. It was further apparent that they felt they possessed some other skills that would be useful to the workplace. Some attempts were made to determine what mode of training delivery best suited and provided the significant changes to the individual workplace behaviours and skill levels.

The data (in Table 4.9) indicates that there is a marked improvement in skill acquisition as a result of on-the-job learning. In total, 87 per cent of the respondents felt that they gained 'little' to 'substantial' improvement in their work performance after on-the-job training, whereas, from the same respondent group, 75 per cent felt they gained only 'little' to 'considerable' improvement in their work performance from TAFE training. These questions demonstrated that there was a preference for learning through on-the-job training (in keeping with Billett's (1993) findings), and that the respondents felt that they had benefited mostly from this mode of learning.

Table 4.9 Performance Improvement

Improvement in work performance after training	No Improvement	Little Improvement	Some Improvement	Considerable Improvement	Substantial Improvement
TAFE	25%	12.5%	50%	12.5%	0%
On-the-Job	12.5%	31.25%	18.75%	18.75%	18.75%

Source: Appendix: A 1.03, 1.04, 1.05, 1.06 & 1.07   n = 18

Two questions (Appendices A 1.08 and 1.09) did not add value to the enquiry or the deliberations and were consequently not dealt with in this study.

4.1.3 Workers (Group 2)

This group is comprised of new starts who were undertaking structured training at the workplace, but only in an on-the-job format. A questionnaire that explored attitudes about the training interventions was given to employees who had not undergone any formal skill training at the workplace and it revealed they had similar attitudes as their colleagues who were participating in the training. Further research should be done to ensure validity of this material because there is potential for opinions and responses to be contaminated through contact with other employees.

Group members were asked questions to determine their attitudes towards the formal training and on-the-job training that was being conducted.

Table 4.10 Contribution to Work Performance

What Training will Contribute Towards Enhancing Work Performance?	Yes	No
Formal Training (TAFE)	86	14
On-the-Job Training	100	0

Source: Appendix: D 4.02, 4.03, 4.04, 4.05   n = 7

It appears that the individuals are confident that training is valuable and that it is relevant and appropriate for their work. There is some bias towards on-the-job training in preference to the current formal training that is being used. There is no evidence available to interpret the value judgements that are being made. Despite 86 per cent of respondents saying that TAFE training contributed to work performance, the 100 per cent response in relation to on-the-job training demonstrates stronger support for this training approach.

To address the hypothesis *'existing training methods can be changed to enhance skill acquisition at the commencement of employment'* it was necessary to compare the information gathered regarding existing formal training methods and the perceived best method for delivering training.

4.2 Summary

From the data available there is sufficient evidence to suggest that the existing formal training methods do not satisfy user needs. There is further evidence that suggests the users both at the industry and enterprise level believe that there are opportunities to re-arrange training to better suit their needs. There is further evidence to suggest, from other research, industry and enterprise observations that training for new starts can be constructed and delivered in such a way as to be sympathetic and responsive to the individual's learning needs. Evidence from research by contemporary thinkers, such as Baylis (1994) and Billett (1993), recommend that any vocational training at the start phase of a person's employment should be dedicated to, and highly focused towards, the work at hand. Their research revealed that wider learning (such as TAFE courses) should be undertaken at a later time when the individual has acquired the basic skills related to the work area. It may therefore be said that *'existing training methods can be changed to enhance skill acquisition at the commencement of employment'*.

In consideration of each of these hypotheses;

- [that] *If the manufacturing processes are dependent upon training, then the training will be undertaken;*

- *formal training is not necessary to provide the new start employee with the skills to execute their work; and*

- *existing training methodologies can be changed to enhance skill acquisition at the commencement of employment*, and given that each of them can be supported, to some extent, it may be said that the principal hypothesis, *Vocational education can be better structured to facilitate the acquisition of job related skills*, can also be supported.

Chapter 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Recommendations

This research looked at the learning process in the context of the new employee. It explored the way, or ways, that training is delivered, and its value to the individual and the employer in a manufacturing environment.

The findings, when considered in conjunction with other researchers' work, indicate that individuals that undertake workplace, on-the-job training have been able to :

- readily assimilate into the workplace;
- define their work in a manner that indicates full understanding of their work requirements;
- fully contribute to production outputs;
- demonstrate an ability to execute their assigned work activities in such a way as to produce goods in accordance with the organisation's need; and
- specifically focus on their work activity performance.

The findings have further indicated that new start individuals who undertake workplace TAFE training have been able to:

- define their work in a manner that indicates full understanding of their work requirements;
- demonstrate an ability to execute their assigned work activities in such a way as to produce goods in accordance with the organisation's need;

but have been unable to:

- consistently achieve the desired production figures required, or as
- readily assimilate into the workplace as their counterparts.

This disparity may have impacted upon the individual's perception of the value of training, and the quality of workplace interpersonal relationships. The industry based workplace survey indicated that management, at the enterprise, is committed to using training as an integral part of the process for delivering

change to the organisation. It is apparent that the commitment is more than superficial and that all departments are utilising the available training materials.

They further indicated that they believed the manufacturing process was dependent upon training being provided for the operators.

The findings have further indicated that the management group:

- perceive training to be valuable;
- are unable to detect real value in off-the-job training that is delivered during the early start up phase;
- have detected variations in productivity that they perceive directly relate to the time spent in training;
- are unable to substantiate that off-the-job training, during the early employment phase, has any real impact on productivity improvement;
- believe that on-the-job training, during the early employment phase, has substantially contributed to the work performance of all individuals.

From the study, it is therefore concluded that the most appropriate training intervention that could be implemented for new starts, should be substantially comprised of:

- on-the-job training;
- entirely focused information, that is specific to the immediate task;
  and that it should be delivered by:
- a mentored arrangement; and with a
- just-in-time format.

These findings and deliberations would therefore support the hypothesis (No. 3) that *existing training methodologies can be changed to enhance skill acquisition at the commencement of employment.*

Developments under the National Training Reform Agenda lay down the needs for skilling Australia, and 'promotes a number of reforms which have direct significance for the way vocational education is to be delivered by TAFE (Misko,

1994, p.1). A major concern of Misko's is that the larger providers need to recognise that their methods of delivery must be reformed, however, they continue to deliver training in formats which are not addressing the real issues of learning. Their style of imparting the information and even the delivery venues used are changing, but what the providers are not ensuring is that the learning material is user friendly for people who in many cases, have had limited exposure to or success in the world of formal study. It is interesting to find that a National project, commissioned by the Flexible Delivery Working Party, responsible for examining the relationship between flexible learning and physical facilities, was able to say that 'staff and students, will have to acquire the additional skills necessary to use the facility' (Anderson, 1995, p.4). Any facility or tool designed for educational purposes should be of assistance to the learner, not another hurdle or obstacle in their way. Another study (Misko, 1994) discussed the issue of flexible learning, and perhaps places the drive to implement this learning style in perspective when saying,

> *flexible delivery has been identified as one way to maintain market share in an open vocational education market. In the long run its survival will depend on its ability to delivery better learning without increasing costs and red tape to any great extent. It will also depend on how well it can ensure that it does not further dis-empower disadvantaged groups' (p.50).*

The recommended procedures do not diminish the value or importance of any other method of delivery. What they do recognise is that the individual has certain needs and responsibilities in the early employment phase, and that their efforts to fulfil these are best supported by focusing on the immediate needs of the job and the knowledge and skills necessary to execute them.

5.2 Conclusions

The accelerating pace of technological change, the demands of international competitiveness and new management techniques have removed the old hierarchical structures and by necessity focused on workplace reform. Much of the reform energy and money had previously been directed towards things other than the worker's behaviour and skills, but now most organisations are recognising that the direction in which the true reforms are possible is through

investment in their human resources. This has resulted in an increased emphasis on skills based training and a focus on the processes of updating knowledge and procedures. These initiatives, in concert with many other factors, have identified the need for the provision of improved training methodologies and as Hesketh and Chandler (1994, p.8) discuss, the 'training programs should include a component which fosters adaptability and the content should develop skills which are potentially transferable to new jobs.' Any training intervention considerations also need to include the 'primacy' effect (as previously discussed by Harrington 1991, p.8) to ensure skill information is 'embedded' reducing the potential to lose the newly acquired skills.

The training should therefore be constructed and delivered in such a way as to be sympathetic and responsive to the individual's learning needs. Contemporary thinkers, such as Baylis (1994) and Billett (1993), recommend that any vocational training at the start phase of a person's career should be dedicated to, and highly focused towards, the work at hand. Their research revealed that the wider learning (such as TAFE courses) should be undertaken at a later time when the individual has acquired the basic skills related to the work area. It is this type of thinking that supports the tenet that the most efficient and effective training during the early employment period, for industrial applications, is on-the-job training.

TAFE has accepted the charter, and the associated funding provisions; to provide industry based training; according to Misko (1994, p.2) they now need to adopt a more client focused and responsive approach to the requirements of industries within this country. It must, along with all other training providers, also accept that any learning processes centred in the workplace will provide the most likely opportunity for the individual's development of vocational expertise, and that 'workplace learning provides an optimal place for the acquisition of robust and transferable vocational skills' (Billett 1993, p.4) thereby satisfying the needs of both employers and employees. Again, as Dawkins and Holding (1987) previously indicated, the current training systems are too rigid, and produce a range of skills which are too narrow to meet the needs of industry. Providers

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need to be responsive to the consumer's needs and sufficiently free of any administrative constraints to allow flexibility in design and delivery for the client. Consideration by providers should therefore be given to ensure that any employee learning of on - the- job related behaviour remains important and strategies are put in place to maximise these learning opportunities. Factors such as the training environment and associated learning strategies will then become important issues for the curriculum developers. Those providers that are unable or unwilling to become involved in the process of consultation, do not commit to implementing new methods and technologies, including developing appropriate training courseware, will subsequently have a diminishing impact on vocational education, and a reduction in their status and their contribution to organisational and individual development.

What must also be remembered though, is that the responsibility to train the employee still resides with the employer and the employee. The skills, competencies or behaviours that are wanted need to be developed in accordance with their identified needs and in preference to, as Curtain (1993, p.52) states 'relying on training provided by other firms or by the educational institutions, rather than being actively involved themselves'.

Although not conclusive, there is sufficient material and data available to indicate that there is merit in stating that *'Vocational Training can be better Structured to Facilitate the Acquisition of Job Related Skills'*, and as a consequence of this, all training providers should examine their motives and the way that training is designed, constructed and delivered. The recognition that there is a link between education, training and the economy is comparatively easy, but determining what is the best and the most appropriate method of linking these factors together is perhaps the next real issue for politicians, managers, unions, workers and educators to address.

5.3 Future Research

As noted above, the survey findings have some limitations. What the research has done is identify a number of areas for further investigation. The most significant area for further formal research studies is in the area of determining the real value of any training intervention in terms of performance improvement for the new start employee.

Each of the limitations that impact on the outcomes of this research need to be the subject of further study to ensure validity of the current findings; these limitations are:

- the size of the survey group (30 people) was small (a one hundred per cent response rate for the questionnaire was achieved);
- only one manufacturing environment was studied;
- an inability to clinically observe the learning environment;
- limited time available for a minor thesis; and
- an inability to remove external influences, such as informal learning and the effects of prior knowledge.

From these considerations some parameters for the study can be established, which include:

- a larger study group, which is across several manufacturing enterprises;
- removal of external influences through careful pre-testing before commencement of work; and
- some method of controlling or evaluating the impact of the opinions of others with regard to the value of the training.

Another area that needs further study is in establishing the impact that training interventions have on people with learning or literacy difficulties.

Bibliography

Anderson, T. 1995, 'Physical Facilities for Flexible Learning: A study', *Intercom*, Volume 3-2, April, p. 4.

Atkinson, M. 1994, 'Build Learning Into Work', *HR Magazine*, September, pp. 60-64.

Australian Council of Trade Unions (ACTU) 1987, *Australia Reconstructed*, AGPS, Canberra, Australia.

Australian Education Council 1991, *Report of the Committee of Inquiry into Post Compulsory Vocational Education and Training*, AGPS, Canberra.

Australian Institute of Training and Development 1989, *Industry Training in Australia: The Need for Change*, Vol. 16, No. 2, June, pp. 7 - 13.

Australian National Training Authority 1995, *Update of Training Reforms & Issues*, Australian Training Review, June/July/August, No. 15, pp. 22-23.

Australian Training Review 1992, February/March/April, Maxwell Printing Company Pty Ltd, Waterloo, NSW.

Bailey, T. 1990, 'Jobs of the Future and the skills they require', *American Educator*, Spring, pp. 10-40.

Baylis, V. 1994, 'Employers hold the Key', *Training Tomorrow*, UK, pp. 23-24.

Benham, P. 1993, 'Developing Organisational Talent: The Key to Performance and Productivity', *SAM Advanced Management Journal*, Winter, pp. 34 -39.

Billett, S. 1993, 'Developing Vocational Skills in the Workplace', 'What's in a Setting? Learning in the Workplace', *Australian Journal of Adult & Community Education*, Vol. 33, No. 3, pp. 1 -13.

Blais, M. & Dallaire, P. 1994, 'The Empty Schoolhouse', *CA Magazine*, August, pp. 28-31.

Brickman, W. 1993, 'Education', Vocational, *Microsoft (R) Encarta*. (c) Microsoft Corporation, Copyright (c) Funk & Wagnall's Corporation.

Bunning, C. 1985, 'Turning Experience in to Learning: The strategic Challenge for Individuals and Organisations', *Training and Development in Australia*, pp. 5 - 9.

Cacioppe, R., Warren-Langford, P., & Bell, L. 1990, 'Trends in Human Resource Development & Training', *Asia Pacific Journal of Human Resource Management*, Vol. 28/1, May, pp. 55 -73.

Casey, D. 1992, 'The Workplace Classroom', *Australian Training Review*, February/March/April, pp.23-26.

Casey, D. 1993, 'Role of Industry Training', *Australian Training Review*, December, pp. 33-34.

CCH Australia 1992, *Aust & NZ Training & Development Management Manual*, Australia.

Collins, R. 1980, *The credential Society: An Historical Sociology of Education and Stratification*, Academic Press, New York.

Curtain, R. 1993, 'The Australian Government's Training Reform Agenda: Is It Working?', *Asia Pacific Journal of Human Resources*, 32 (2), pp. 43 - 55.

Dawkins, J. & Holding, A. 1987, *Skills Formation in Australia*, AGPS, Canberra, Australia.

Delaney C. 1995, 'Trainers and the Technology Revolution', *Training & Development*, August, pp. 44 -46.

Department of Industrial Relations 1990, *On-the-Job Training*, AGPS, Canberra, Australia.

Dick, W. & Carey, L. 1990, *The Systematic Design of Instruction*, Harper Collins Publishers, USA.

Di Foggio 1990, 'Huge Ramifications in Metals Industry Agreement for TAFE Teachers', *The Australian TAFE Teacher*, Second Quarter, pp. 7 - 9.

Einsiedel, A. 1995, 'Case Studies: Indispensable Tools for Trainers', *Training & Development*, August, p. 50.

Ferguson, J. & Smith, B. 1988, 'Behaviour Modelling', *Training and Development in Australia*, Vol. 15, No. 4, December, pp. 2 -9.

Ford, G. 1990, *Re-thinking Skilling for a Re-structured Workplace*, Commission for the Future, AGPS, Canberra, pp. 1 - 21.

Goldstein, H., & Fraser, B. 1985, *Training for work in the Computer Age: How Workers who use Computers Get Their Training*, Washington, National Commission for Employment Policy.

Harrington, H. 1991, *Business Process Improvement*, McGraw Hill, New York, p. 8.

Hesketh, B & Chandler, P. 1994, 'Training for New Technology: Adaptability and Developing Learning Skills', *Training and Development in Australia*, July, pp. 8 - 10.

Hodson, R., Hooks, G., & Rieble, S. 1992, 'Customised Training in the Workplace', *Work and Occupations*, Vol. 19, No. 3, August, pp. 272 - 292.

Holcomb, J. 1994, *Make Training Worth Every Penny*, Pfieffer & Co., Calif., USA, p. 108.

Hosie, P. 1991, 'Human Resource Managers and Training: A Peek into the Future', *Asia Pacific Journal of Human Resources*, Vol. 29/2, pp. 49 - 66.

Industry Task Force Report, 1995, *Enterprising Nation: Renewing Australia's Managers to Meet the Challenges of the Asian-Pacific Century*, AGPS, Canberra.

James, P. 1987, *Learning and Teaching. A Practical Manual in Educational Psychology*, Hawthorn Institute of Education, Melbourne.

Johnston, C. 1995, 'Inducting Learners in Telecom', *Intercom*, Vol. 3-3, June, p. 1.

Jones, B. 1990, *Sleepers, Wake!*, Oxford University Press, Australia.

Karpin, D. 1995, 'In Search of Leaders', *HR Monthly*, June, pp. 10-14.

McIntosh, S. 1995, 'Envisioning the Virtual Training Organisation', *Training & Development*, Vol. 49, No. 5, May, pp. 45-49.

Misko, J. 1994, *Flexible Delivery: Will a Client Focus System Mean Better Learning?*, National Centre for Vocational Education Research Ltd., South Australia, pp. 1 - 55.

Murray, M. 1991, *Beyond the Myths and Magic of Mentoring*, Jossey-Bass Inc., Publishers, San Fransico, California.

Noone, L. 1994, 'Employee Performance on-the-job', *Training and Development in Australia*, Vol. 21, No. 2, May.

Peddle, B. 1995, 'NSW TAFE and RAAF combine forces', *Australian Training Review*, No. 15, June, pp. 20 - 21.

Process Manufacturing Industries 1995, *National Vocational Education & Training Plan for the Process Manufacturing Industries*, Chemical & Oil Learning Australia, The National Hydrocarbons Industry Training Advisory Project Ltd., The National Plastics and Rubber Industry Training Council Ltd., and The National Cement and Manufactured Concrete Products Competency Standards Body, Australia.

Sekaran, U. 1992, *Research Methods for Business: A Skill Building Approach,* John Wiley & Sons, Inc. New York.

Senge, P. et al. 1994, *The Fifth Discipline Field Book,* Nicholas Brealey Publishing, London.

Shann, E., & Fitzgerald, V. 1990, *Developing Australia's National Competitiveness,* Business Council of Australia, Melbourne.

Short, M., Romeyn, J., & Callus, R. 1994, *Reform and Bargaining at the workplace and enterprise: Evidence from two Surveys,* Industrial Relations Research Series, No. 12, AGPS Press, Canberra.

Sloman, M. 1989, 'On-the-Job Training', *Personnel Management,* February, pp. 38 - 41.

Smith, A. 1992, *Training and Development in Australia,* Butterworths, Australia.

Smith, A. 1993, 'Australian Training and Development in 1992', *Asia Pacific Journal of Human Resources,* Vol. 31/2, Winter, pp. 65 - 74.

Thoeming, P. 1994, 'Certificate Flags Vanguard of Training Revolution', *Australian Training Revue,* September, pp. 4 -5.

Tooth, T. 1994, 'Bridging the Gap', *Australian Training Revue,* September, pp. 25 - 27.

Training Costs Review Committee 1990, *Training Costs of Award Restructuring,* Vol. 2, AGPS, Canberra.

Von Brachel, J. 1994, 'What Price Apprenticeships?', *Across the Board,* January, pp. 32-38.

Wood, D. 1995, 'Theory, Training & Technology'. *Education and Training* Vol. 37, No. 1, pp. 12 - 16.

Yemm M. 1995, 'Developing Independent Learning Skills', *Intercom,* Vol. 3-3, June, pp. 3.

This questionnaire was completed by:

- all worker respondents, who undertook formal skill training.

SECTION 1 Instructions: SKILL DEVELOPMENT

This section requires you to carefully read the questions, decide on the answer to be given and then circle the number closest to the most appropriate answer. Please circle only one number per answer.

1.01

Did you have the relevant job skills when commencing this job?

Not at All 1   2   3   4   5 Completely

1.02

Did you have any other relevant job skills when commencing this job?

None 1   2   3   4   5 Many

1.03

After TAFE training did your work performance improve?

Not at All 1   2   3   4   5 A lot

1.04

Has training other than TAFE training helped you to improve in work performance?

Not at All 1   2   3   4   5 A lot

1.05

Has on-the-job training been effective in improving your work performance?

Not at All 1   2   3   4   5 Completely

1.06

Has off-the-job training been effective in improving your work performance?

Not at All <u>1   2   3   4   5</u> Completely

1.07

Has external training been effective in improving your work performance?

Not at All <u>1   2   3   4   5</u> Completely

1.08

Do you fully understand your work responsibilities?

Not at All <u>1   2   3   4   5</u> Completely

1.09

Do you freely share your work skills and knowledge with others?

Never <u>1   2   3   4   5</u> Always

Appendix B Thesis Questionnaire - Section 2 & Section 3

This questionnaire was completed by:
- managers, supervisors and team leaders.

SECTION 2 Instructions: TRAINING PROVISION

This section requires you to carefully read the questions, decide on the answer to be given and then TICK the most appropriate answer. Please TICK only one answer to each question.

2.01

Does your department undertake training?   Yes   No

Please tick one

2.02

Is this training purchased from an outside provider?   Yes   No

Please tick one

2.03

Is the manufacturing process dependent upon this training?   Yes   No

Please tick one

2.04

When does the organisation need to have this training provided?

- as soon as people are employed
- after 1 months experience
- after 2 months experience
- after 3 months experience
- after 6 months experience

Please tick one

2.05

Is the training provided

- on site
- off site
- on-the-job
- other, please specify

_____

_____

2.06

Who provides on site training to your employees?

- internal trainer
- external trainer
- line manager
- employees' supervisor/team leader

Please tick one

2.07

Are the training outcomes readily transferable to existing work conditions?

Yes   No
Please tick one

2.08

Does the trainee use the material on-the-job

- within one day
- within one week
- 2 - 6 weeks
- never

Please tick one

2.09

Is the training provided often enough?

Yes   No
Please tick one

2.10

Is the training easy to understand?

Yes   No
Please tick one

2.11

Has there been any modifications to the original material to suit your conditions?

Yes   No
Please tick one

2.12

Was the training changed to suit the employees' needs?   Yes   No

Please tick one

2.13

Which parts were changed?

- training information
- the way it's taught
- the testing methods
- different trainer/s
- other, please specify

_____

_____

2.14

Have these changes helped your employees to learn?   Yes   No

Please tick one

2.15

Do your employees get a qualification at the end of training?   Yes   No

Please tick one

2.16

Do your employees need to have this qualification to do their job?

Yes   No

Please tick one

2.17

Will this qualification be given by

- TAFE
- University
- Other, please specify

_____

_____

SECTION 3 Instructions: TRAINING PROVISION

This section requires you to carefully read the questions, decide on the answer to be given and then tick the most appropriate answer. Please tick only one answer per answer.

3.01

Could another party provide similar training as the current provider?

Yes No

Please tick one

3.02

Who currently determines the format of the delivered training?

- TAFE
- Industry Training Board
- Private Provider
- Your Organisation
- Other, please specify

_____

_____

3.03

Who currently determines the content of the delivered training?

- TAFE
- Industry Training Board
- Private Provider
- Your Organisation
- Your Industry Group
- Other, please specify

_____

_____

3.04

Does the training influence productivity and quality outputs of your employees?

Yes No

Please tick one

3.05

Do you believe the trainee better understands the work processes because of this training?

Yes No

Please tick one

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3.06

Must the trainee complete this training to carry out current work?

Yes   No

Please tick one

3.07

Could the training be undertaken at a later time?

Yes   No

Please tick one

3.08

Could existing training be eliminated by on-the-job training?

Yes   No

Please tick one

3.09

Are there sufficient trained operators to pass on work based knowledge and skills?

Yes   No

Please tick one

3.10

Does your current provider consult with you regarding the employees' training needs?

Yes   No

Please tick one

3.11

How regular is this contact?

Never 1_____2_____3_____4_____5 Often

3.12

Have there been any changes to the training as a result of the consultations?

Yes   No

Please tick one

3.12a

If Yes, please provide an example   _____

This questionnaire was completed by:
- all worker respondents who had not undertaken any formal skill training.

To be completed only if the individual has not undertaken formal training since starting this job.
This section will look at skills and training for on-the-job training only.

SECTION 4 Instructions: WORK CENTRED TRAINING

This section requires you to carefully read the questions, decide on the answer to

be given and then tick the most appropriate answer. Please tick only one answer

per answer.

4.01

Do you have the necessary skills to adequately carry out your work?

Yes   No

Please tick one

4.02

Would the TAFE training contribute to your ability to do your job?

Yes   No

Please tick one

4.03

Would other training contribute to your ability to do your job?

Yes   No

Please tick one

4.04

Would further on-the-job training improve your performance?

Yes   No

Please tick one

4.05

Would off-the-job training help you in your job?

Yes   No

Please tick one

Thank you for your valuable time and also for this very useful information.
Please give the document back to the distributor, who will pass it on to me.

Steve.