Vocational Education Development in a Work-Based Learning Programme

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By

Mallika Modrakee
B.A., (The University of the Thai Chamber of Commerce)
M.A., (National University, San Diego)

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DECLARATION

I formally declare that unless otherwise stated, the work presented is my own work and has not been submitted previously in whole or part for any other academic award. The work submitted is less than 60,000 words.

Signed Date

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LIST OF ABBREVIATIONS

CBI	Confederation of British Industry
DfES	Department of Education and Skills
DOVE	Department of Vocational Education
HMIE	Her Majesty's Inspectorate of Education
HMI-OFSTED	Her Majesty's Inspectorate, Office for Standards in Education
IMD	The International Institute for Management Development
MOE	Ministry of Education
NCVER	National Council for Vocational Education Research
NSO	National Statistical Office
OEC	Office of the Education Council
OECD	Organisation for Economic Co-operation and Development
ONEC	Office of National Education Commission
PISA	Program for International Student Assessment
SCANS	Secretary's Commission on Achieving Necessary Skills
UNESCO	United Nations Educational, Scientific, and Cultural Organization

ABSTRACT

VOCATIONAL EDUCATION DEVELOPMENT IN A WORK-BASED LEARNING PROGRAMME

This study is an action research investigation to develop a work-based learning programme for vocational students at Aksorn School of Technology Pattaya, Thailand. Historically, vocational education has been primarily school-based with the emphasis on teacher-led instruction and scant workplace experience. This resulted in major weaknesses in student preparation and readiness for the work environment. The aim of this study was to install a work-based learning programme to give students better preparation for the workplace, and give them contextual experience of work practice through work placements, and then evaluate the outcomes of the experience. By providing students with greater practical exposure to the workplace culture and conditions, the study endeavoured to foster skills, competencies, and a mindset suitable for the world of work.

The project was overseen by a committee of stakeholders, and facilitated by the researcher. The study followed two cohorts of ten students over two action research cycles of three months each. Data were collected via student focus groups, observation, field notes, interviews, and analysis of documents, including student journals, and employer and teacher assessments. The outcomes from the study have indicated that a work-based learning programme has the potential to address many of the problems facing our students in their career development. Furthermore, the disciplines imposed in conducting the enquiry made all the participants involved examine their own work practices and, has been a contributory factor towards the stakeholders' professional development.

CHAPTER 1

INTRODUCTION

1.1 Background

Since the early 1980s, Thailand has seen a progressive transformation in its growth and development from an agriculture-based economy to a burgeoning industrial market-driven economy. This transformation and new direction in economic growth has demanded a change in the types of human resource and capabilities needed. Moreover, many commentators agree that the economic crisis which hit Thailand in 1997, was exacerbated by Thailand's frail human capital resource (ONEC, 2003). There has been a marked decline in skills proficiency in recent years, especially in science and technology.

Education, especially vocational education, can perform a vitally important function in the restructuring process and the country's economic development. It can make a significant contribution to the creation of a skilled workforce by producing the manpower to serve the labour market demand and encourage continuing tertiary education in the technical and scientific fields.

However, traditional forms of education do not provide the best preparation for the emerging industrial economy and for some time, the Ministry of Education (MOE) stressed the need to reform vocational education to complement and facilitate future development. It was critical of the way vocational education prepares students for the workplace, and cited incompatibility between the school curriculum and the needs of the workplace (DOVE, 1998a). This criticism was echoed by a World Bank study in 2000, which found that 75% of the surveyed Thai companies had difficulties finding recruits with the necessary qualifications and skills. The study also found an under-education of the labour force compared to other countries with which Thailand competes. The report recommended an urgent need for higher quality education and demand driven skills development (DOVE, 2000).

The vocational system in Thailand has played an important role producing middle level manpower to fulfil the actual need of the labour market, and the development of the country. However, vocational education has been criticised for not providing a sufficient theoretical foundation for graduates to continue learning and adapting throughout their working lives. For some time, an inflexible and rigid learning environment has been identified as a major cause of the failure to meet the private sector's employment requirements.

In recent years, administrators in the vocational education field have worked hard to overcome the stigma that has long branded vocational education as inferior to traditional academic curricula (MOE, 2002). In fact, many vocational programmes have evolved to blend strong academic knowledge with cutting-edge technical and career skills. Pure academic education, on the other hand, seems irrelevant or incomprehensible to many students. Combining the two may improve students' academic performance and develop work-related capabilities at the same time. They will have not only the necessary academic background, but also a better understanding of how their schooling relates to a desired career.

Vocational education by itself is also inadequate, because it does not equip students to apply their abstract knowledge or to learn in the context of practical problem-solving**.** Employees must now have competencies in the new technologies, higher levels of knowledge and self-learning abilities. To meet the new challenge educators, politicians and administrators all agree that the current Thai education and teaching system needs significant reform to help re-establish Thailand's competitiveness in the global economy.

In response to the perceived failure of traditional education and training to prepare students for more learning-intensive work, the government implemented the framework for education in the 1997 Constitution and the 1999 National Education Act. Following the Constitution and the National Education Act, the National Education Plan (2002-2016) was promulgated to effect and embrace equity and

quality of life for all. Moreover, it pledged "to improve education to be in harmony with economic and social change" (ONEC, 2002a).

Article 20 of the 1999 Education Act stipulates that occupational training should be provided for educational institutions belonging to the state or the private sector and affiliates, organised through co-operation with educational institutions and enterprises to meet the National Education Act requirements.

However, according to the Ministry of Education publication *Education in Thailand 2004 "* the number of students wishing to enter vocational education in both state and private educational institutions has significantly and constantly decreased for several years, from 585,166 in 1999 to 571,267 in 2003, despite an increasing demand for skilled labour"(OEC, 2004).

The need for educational reform can be rationalised in the contexts of national and international developments. Internationally, communities are changing from industry-based to knowledge-based societies where the assimilation and distribution of information plays an increasingly important role in individual and community development. It is axiomatic, therefore, to develop an education model, which will encourage and promote knowledge-based learning, communication skills and life-long learning. Global experience shows that changing practices in education depends on the whole system, from the state down and not just in the classroom.

According to the present National Scheme of Education BE 2542, vocational education aims to enable learners to develop vocational knowledge and skills useful for working both as entrepreneurs and as paid workers (ONEC, 1999). Moreover, in order to meet the requirements, the National Education Act will serve as the fundamental law for the administration and provision of education and training. Various efforts have been made to enable students to learn at all times and in all places. The Act stipulates that vocational education and training is provided in public and private sector educational institutions and enterprises, or arranged through joint educational enterprises (ONEC, 2001a).

ONEC (1999) suggests that it should focus on educational management at the vocational education school, as it is responsible to ensure the development of three major qualities in its students. They must have knowledge and understanding, vocational skill, and a positive attitude.

The Thai education system is currently in the process of radical and comprehensive reforms, and all elements in the system are involved. Furthermore, it is planned that the Ministry of Education (MOE), after the re-organisation of the administrative structure will de-centralise the public educational administration and management to local organisations, and education institutions (ONEC, 2002a). It must be hoped that the de-regulation and increase in autonomy of local organisations will bring flexibility and fresh ideas. For what is now required is a properly integrated and controlled school programme to link educational establishments and industry. Of paramount importance will be the focus on appropriate work experiences for students.

1.2 Vocational education in Thailand

For well over a decade industry and business have called for vocational educational institutions to focus much more on learning for work, career guidance and vocational skill development. UNESCO (1996) found that many problems exist. There was no legislation to enforce participation of industries in vocational education. Co-operation and co-ordination between vocational schools and industries depended on personal effort and personal relationships as well as the willingness of industries. The school curriculum did not arrange a programme to meet the student and employer needs directly. Moreover, technology and equipment in industries have changed rapidly, while vocational schools have been unable to keep abreast of these changes due to budget limitations. The problem of shortages in high technology skills is increasing daily. School is only a practice ground, as it is impossible to provide the latest technology, unless the school is linked to a work-based partner in industry. As a result, the student lacks competency and up to date know-how.

The learner-centred perspective is at the core of the Thai education reform and placing the learner at the hub of the learning process has been a central tenet of the programme (ONEC, 1999). From my own experience in the past there have been work placements where vocational students have been seconded to various commercial organisations. These experiences, however, were not properly integrated, and the students had no induction and orientation at school prior to the work placement. The students often complained that the placement had no bearing on the vocational subject they were studying at school and found the employer was often unprepared for their secondment and would give out menial and irrelevant jobs for the students to undertake. This resulted in dissatisfaction all-round. The employers had a poor perception of student placements and the students felt they were exploited, or not taken seriously by the employers.

It was within this context that we had to re-build employer confidence and commitment to the work-based learning programme, and re-establish the merit and future benefits of the scheme to ensure a cohesive and coherent programme.

In Thailand, the research into work-based learning initiatives is very limited and there is a paucity of significant legitimate data. One of the key objectives my study in Thailand attempted to achieve was to foster student accountability and responsibility in the workplace.

One initiative is on record, however. In 1988 the Department of Vocational Education (DOVE) formed an alliance with the German government to solve the problem of inadequate student skills which were not compatible to industry's requirements. Dual vocational training, based on the German system was implemented to provide students with the opportunity to practice in a real workplace setting and to forge a link between school and work. The objective was to give students the ability to function effectively at school and work with an integrated curriculum. As an adaptation of the German system it was necessary to teach both academic and technical skills in the classroom as a foundation to support work-based

learning in the real setting. Details of the German system are outlined in Chapter 2, pages 14-15.

The trainees enrolled with a technical or vocational school where they were taught theory-oriented vocational subjects as a foundation for the occupation they wished to pursue. They spent two days a week normally at school and the remainder with the work provider. The programme was installed in numerous state vocational schools throughout Thailand. Although the scheme has been in operation for many years, there have been difficulties in the execution, mainly through lack of a support structure and lack of integration and cohesion among the stakeholders involved.

All programmes are in the development stage, and have been organised independently. Many universities and vocational schools wanted to launch their own programme. They realised it was a significant method to develop their own organisation and professional development. However, it was very difficult for other schools to implement their own programme because of lack of information models, and an absence of direction from central government.

Thus, the present status of vocational education is not encouraging. The need to produce the right skills for work is widely recognised, but the practical implementation is more problematic. There is a major gap between what the schools are producing in terms of students' all-round abilities, and skills and what employers demand.

Furthermore, stronger bonds between school and work must be tied and all educators realise the importance of experienced-based learning as the best way to help graduates make the transition from school to work.

It is now a matter of urgency and expediency that Thailand reforms its vocational education practices to ensure the future workforce is competent and skilled to compete with the global conditions that will certainly become more difficult with the rapid economic development of S.E. Asian countries.

1.3 The context of the study

I am the Administration Manager at Aksorn School of Technology Pattaya, which is a private full-time vocational school. There are currently 401 private institutions, with 380,767 students enrolled and 412 public institutions with 817,100 students enrolled at vocational and high vocational levels accredited by the Ministry of Education (OEC, 2004). The students have to study for 3 years for the vocational certificate. Students on the higher vocational certificate programme enter at eighteen and study for 2 further years for the higher vocational certificate. I have long been conscious of the deficiencies and shortfalls in our system to prepare students for the job market. Our procedures and teaching methods have followed the same format and dogma for a century without regard to the rapidly changing world about us. In the future I am determined that the education we are providing should give the best possible learning facility to enable the students to fulfil their ambitions and aspirations, and give them comprehensive preparation for their careers. Work-based learning can be used as an instrument to overcome vocational student problems, and can facilitate continuous learning in the context of work. A logical implication for initial education and training is that schools should give students some experience in work-based learning. By gaining practice in the deliberate use of work to develop knowledge and skill, students can be better prepared for a lifetime of learning at work.

Previously, vocational education in Thailand focused on teacher-led instruction in the classroom although vocational education differs from secondary education because it concentrates more on vocational pathways by having a curriculum to link to specific occupations. However, it is still bound by the old traditional methods with an outdated curriculum, inappropriate equipment, and a teaching system designed to cast students in a passive role deferring to the teacher. Vocational education has not been developed to keep abreast of the current labour market demands. With the new Education Act, many developments were planned, but it will take time to implement the changes. Vocational schools will be self-regulating and be responsible for their own progress.

Traditional teaching methods are often a barrier to graduates wanting to apply contextual knowledge in a practical context (Resnick, 1987). Academic and vocational education using traditional methods, therefore, has limitations and will not serve students well in the long term. The students have played a passive, and subservient role. There has been little attention paid to the needs of the workplace and the skills required by employers today and in the future. The educational reforms in train, and planned, as discussed, are shaped to address the teaching methods and the training strategy needed to produce a change in attitude and perception from students, teachers, and the wider community.

We have an obligation to the community, and also to support the Education Act requirement, by ensuring our students are responsible and productive members of their community. Our school is located in East Thailand, and the near environs include the Eastern Seaboard port, where many diverse industries are situated. Pattaya City is a renowned tourist resort, with a huge employment market, covering many job areas. There is a constant demand for the school to provide a wide range of quality employees.

However, from previous experiences we have had difficulties with student outcomes. There have been many obstacles with the work experience programme that was part of the normal curriculum. Furthermore, the school often received adverse comments from employers about under qualified graduates.

Vocational schools at least have some work experience built into the curriculum which gives students an opportunity to get some workplace experience to practice the concepts they are studying. They are required to experience at least 380 mandatory hours of work in an industry. However, the placements lacked planning and supervision. There was little co-ordination between the school and workplace. Further problems were experienced with the quality of the students to manage the rate of technological change, which meant the designation of work became more unreliable, and procedural skills learned in school were out of date and not applicable to the job.

It was seen that the work experiences the students engaged in previously were not properly co-ordinated and organised and often resulted in them carrying out menial tasks which had no relevance to their school vocational course. The students as a result became disillusioned and apathetic, with poor self-esteem, and ill-prepared for the workplace. For these reasons, I wanted to construct a programme, which could bring about radical change and reform in my school and provide a study platform which could serve as a research model for future programmes.

Prior to the commencement of the programme, a seminar was held to debate and analyse the issues which we needed to address. All stakeholders were present, including representatives from the local employers.

Some of the negative comments were as follows:

Students

- The students' lack basic generic skills and a code of conduct for behaving properly at the workplace.

- The students lack motivation and do not have any appreciation of a career path.

- There is a problem of incompatibility between what they are taught at school and what industry requires from them.

Teachers

- Teachers lack hands-on experience with the latest technology.

- Teachers were forced to teach according to the Thai vocational curriculum, so they did not have a chance to teach the wider aspects of a job's technical requirements.

- Teachers have not had experience of the work site. Most have only taught in the school environment.

Trainers from industry.

- Trainers do not have teaching skill techniques.

- Trainers do not understand the nature of students.

- Trainers do not understand the ethos of the school.

- Trainers do not appreciate the routine content of the class and what to teach.

1.4 The work-based learning programme at Aksorn School of Technology Pattaya

In February 2003, the school initiated a work-based learning programme for preparing the students for the workplace in accordance with the objective of the National Education Act. We used work-based learning as the core strategy to support school development.

The purpose therefore of this study was to evaluate the effects of running a work-based learning programme in a vocational school to produce the following outcomes:

- Increase motivation overall in students in order to change attitude and perceptions to prepare for their future career.

- Increase the students' technical and academic competencies and enhance their employability opportunities to meet global demands.

- Enhance professional development of all stakeholders.

This study focuses on important characteristics of learning situations in the work environment that use work-based learning as a key strategy to develop vocational students. Work-based learning also provided the experience in school-based instruction to help students to be prepared to enter the workplace. It is hoped that this enquiry will serve as a significant contribution to the local community, and will act as a research foundation upon which we can build knowledge for the future. An appropriately skilled, globally competitive workforce, is what we are aspiring to and the workplace must look to us as partners in this aspiration.

The study employed action research as the method of enquiry, as we wanted to overtly examine, and collaborate to reconstruct our own teaching methods and practices. Furthermore, we aspired to effect transformation and change throughout the school and the rigour and cyclical nature of the action research process made us examine and reflect minutely upon each step in the enquiry.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In Thailand there has been very little research conducted into the effects of vocational education and its function in preparing students for work. However, reports have shown that vocational students have had scant preparation for their roles in the working environment (ONEC, 2002b). It has affected all sectors of the nation's workforce. The impact of new technology and competition as a result of the global economy has left many young job seekers without the necessary workplace skills and training required. It is widely acknowledged in the current job market that aspiring entrants need to continually adjust and adapt to the ever-changing conditions. There is an urgent need for more contextual preparation, through work-based learning.

According to the Ministry of Education's goal, what vocational education inThailand requires is a radical vision to link schools to business and industry and provide the channels for a mutual flow of information (ONEC, 2002b). More recently, and as part of the initial responses of nations to the changing contexts of work, vocational education has been re-conceptualised as a process more closely linked to human resource development.

Many initiatives are needed to install programmes to make vocational students more aware of and proficient in the various skills and competencies required for the world of work. The principle of the workplace as the best location for vocationally-relevant learning cannot be over emphasised. Kasipar (2001) in a report for the World Bank on vocational qualifications in Thailand proposed a learner-centred strategy to foster and develop generic skills so that students develop initiative and become more responsible for their own learning.

It is important to establish the context and climate in which the enquiry was conducted, and therefore a brief review of vocational education and training in Thailand is given. An appreciation of work-based learning and its history is outlined to put into perspective the historical relevance of the concept. The review looks at the importance of placements with work providers, and illustrates some studies from which to draw inferences. A rationale for the action research methodology is explained, and finally conclusions are given as to how the research review has helped put into context the reasons and warranty of the enquiry.

2.2 Status of vocational schools in Thailand

There are many vocational institutions that provide work placements as part of the curriculum and students attend workplaces for a period of supervised participation in work activities. Students can gain access to knowledge about the world of work and industry can have input and influence on what is taught at school before coming to the workplace.

Currently there are over 800 public and private institutions providing formal and informal VET programmes, and over 1 million participants in the programmes (OEC, 2004). In June 2003, The Education Reform Committee of ONEC recognised three priority areas:

- Re-orienting
- Re-organising and
- Re-financing and re-mobilising of resources

Thailand's Competitiveness

According to the IMD's World Competitive Yearbook 2004 (IMD, 2004) Thailand was 29th out of a total of 60 countries. The infrastructure, productivity, and education performances in particular showed poor results. One reason for low productivity and inadequate infrastructure is an under-qualified workforce. According to the National

Statistical Office *Labour Force Survey* for 2004 (NSO, 2004) over 60% of the workforce attained only primary education or lower. Of particular concern is Thailand's performance compared with other countries in basic education. The OECD Programme for International Student Assessment (PISA) found Thailand had problems in its reading performance (OECD, 2004) and under-performed compared to other OECD countries in Science and Problem- solving (OECD, 2004).

The incidence and importance of work experience in vocational education is growing, in the amount of learning time, didactic elaboration and importance in the curriculum. The standards are improving, but some anomalies remain. The integration between learning in and out of school seems very difficult, if only because school is discarded in student consciousness as soon as the student is in the workplace (MOE, 2002). Conversely, schools have difficulties disseminating what was learned in the workplace and relating it to the school curriculum. Systematic reflection is difficult to arrange (MOE, 2001). At the same time critical remarks remain the same over the years. The main reason for this is not the absence of models or templates but the actual gap between learning in school and in the workplace (ONEC, 2001b). The advance of new approaches and competence-oriented didactic concepts could be a promising way to narrow the gap.

Many new initiatives have been launched at university and vocational school level to give students practical experience of the work site. One example is the Co-operative Education work-based learning programme initiated by Suranaree University. The programme was launched in 1996, and enabled students in their last two years of study to experience the workplace on a paid industry placement. The concept was to provide students with real experiences, where they could develop skills in thinking, observation and decision-making, and deal with problem-solving, which they would not encounter in the normal classroom environment (Jinjid, 2002).

At the vocational level, initiatives have been implemented using the German Dual System of vocational training in government funded public vocational schools. In the academic years 2003-2004 there were 43,800 Dual Vocational Training students (7% of total vocational students) in 51 programmes and 8,900 companies (OEC, 2004).

For example, an association was formed between Daimler Chrysler (Thailand) Ltd., and Samut Prathan Technical College in Bangkok to operate a training centre facility at Daimler Chrysler's plant. The students in the scheme spent a day and a half at school, and the remaining time at the training centre or out at the dealerships getting on-the- job training. The idea was to replicate as far as practical the system used by the company in Germany (Northern Vocational Inspectorate Chiang Mai, 2000).

A summary of the Dual Vocational Training (1995-1997) concluded that the curriculum was not relevant to the workplace practice, because the school and work providers were not co-ordinating the programme to produce and develop a cohesive and practical plan. This resulted in an inappropriate curriculum for the workplace. The Ministry of Education reported that an obstacle to the dual system was the quality of the trainers in the workplace and the standard of the students who were under-qualified (DOVE, 1998a). This view was supported by Kasipar (1995) who, in a study of the training needs of technicians and engineers, concluded that the training of appropriately skilled teachers was paramount.

Deewoon (1999), in a study of problems in dual vocational training by vocational college administrators and industrial executives, found that the students lacked maturity, fundamental skills and responsibility, whilst Suriya's enquiry (1996) about training for technical students revealed deficiencies in ability due to the disparity in equipment between school and work. Sripongwiwat (1998) however, in her study about student assessment at the workplace found that the lack of cohesion and understanding between work providers and school made the provision for assessment very difficult to co-ordinate.

There is no government driven and funded programme to promote and inspire the proliferation of work-based learning. Developments are emerging on an individual basis. For example, to meet the need to provide up to date vocational training as a key element of Thailand's educational reform programme, the British Council launched an initiative in 2001 in association with the Thai Ministry of Education. Vocational training experts and policy makers from both countries were tasked to

develop a Thai Vocational Qualifications Framework (British Council, 2001). Kasipar (2003), who has worked with the British Council proposed:

> *Learning now and in the future must be self-learning by using ICT, and face-to-face systems. Learning in the future should be learned by three modes:*
>
> 1. *Learning in the school system*
> 2. *Learning outside system at work (work-based learning)*
> 3. *Learning authentically: life skills and other skills.*

2.3 Theoretical foundations of work-based learning

Over the last twenty years educational researchers have been persuaded that learning in context is more effective than traditional methods and it is argued that an active, experiential learning approach is a potent formula to motivate effective school to work transition programmes.

Vocational studies have found that practical hands-on activity is the most effective way of learning, and from our limited experience we have found students react more favourably to contextual learning (Mitchell, Henry and Young, 2001). They need exposure to the real world to give them time to learn at their own pace. Vocational students in work-based learning programmes need to be oriented and encouraged towards self-learning to change student perceptions of learning and inspire them to think about the important link between school and work. Work-based learning theory has many facets, which can be used to enrich and develop their organisation and themselves (Mitchell, Henry and Young, 2001).

Work-based learning as a learning environment

A fundamental maxim of work-based learning is that it can deliver more effective learning experiences for students than school learning. Work-based learning, since it

is involved in real work, gives the students an opportunity to experience authentic activities to apply skills learned at school and the workplace and learn new skills in a realistic environment (Stasz and Kaganoff, 1997). Further views are supported by Abbott (1995) who "believes that learning needs to be in context" and the Confederation of British Industry (2000), describes it as "taking place in an environment where many feel comfortable learning, away from the formality of the classroom and written examinations. It offers the opportunity to apply skill or knowledge in a practical environment".

Onstenk (1997) proposes the idea that "the real work situation is the learning environment". This proposition is supported by Kirschner, who suggests:

> *that, in order to learn, learning needs to be situated in problem solving in real-life contexts where the environment is rich in information and where there are no right answers (embedded knowledge). The tasks must be authentic and are best learnt through cognitive apprenticeship on the part of the learner in a rich environment.…* (Kirschner, 2000).

Stasz and Kaganoff (1997) are careful to distinguish between work-based learning and work experience explaining "that work-based learning differs from regular work experience because it links work to the school curriculum". Since the outcomes of work-based learning rest on the quality of the learning experiences provided to students, it makes sense to develop a way to understand workplaces as a learning environment.

Some critics support the argument for the workplace as a learning environment in different overlapping methods. At this stage it will be useful to review the foundations and important elements that make up work-based learning. They are generally acknowledged to be experiential learning, workplace learning, and organisational learning (Stasz and Kaganoff, 1997), adult education and learning organisations (Henry, Mitchell and Young, 2001).

Experiential learning

The literature describes experiential learning as learning and developing by experience and cites the workplace as a learning environment. It is in the workplace that further learning can occur to supplement conventional education and nurture personal development through work activities and career opportunities (Kolb, 1984). Moore (1980, 1981) has been influential in the debate by providing an analysis of the social aspects of education in a non-school environment. He found that the quality of learning in a work-based learning environment can have diverse results depending on the efficacy of the organisation and the integrity of the programme.

Workplace learning

Learning in the workplace can be defined as a practical acquisition of skills and attributes related to work, where the student learns through the problems presented and the learning environment provides the learning material and the authentic work location (Onstenk, 1997). I have found this resonant of my own experience of student's preference for practical learning. As Kessels et al., (2002) argue, competencies can be developed and knowledge built by personal involvement in real situations and exposed to the realistic and meaningful contexts in the workplace:

> *students will have an easier time acquiring abstract and generalizable domain knowledge and meta cognitive skills than in a program intended to impart abstract, theoretical knowledge through lecture courses* (Kessels et al., 2002).

Adult education

What is apparent from the literature, is the direct connection between work-based learning, adult learning, and the evolution of action research through its experiential learning cycle of plan, act, observe, and reflect (Carr and Kemmis, 1983; Grundy and Kemmis, 1982; Henry, 1990).

One of the prime objectives in my research was to get the students to be more accountable for their learning and take up the challenge to graduate to adult learning. Meeting this challenge requires, in the first instance, an understanding of the complexities of adult learning in an organisational context; that is, in the context of the workplace. As Zuber-Skerritt (1992) proposes this can lead to "a revitalisation of action learning through action research".

Knowles (1975), a renowned adult educator, distinguished between adult learning (andragogy), and teacher-directed learning (pedagogy). In adult learning, the learners are given more responsibility and autonomy in their activities. Work-based learning and adult learning are indivisible, and share a common philosophy themselves. I drew comparisons from Knowles in my study, when he explained that adult learners' life experiences are a prime source for self-directed learning and problem-solving in groups. They also provide a path for life-long learning and the way adult learners put meaning to their experiences (Knowles, 1985).

Our work-based learning programme was based on practical activities and encouraged flexibility through communication between the learners and their environment and was designed to promote adult learning.

Learning organisations

We wanted this project to direct student focus to encourage self-learning, learner responsibility and move towards an andragogical concept of learning and graduate to the practice of a learning organisation. Mezirow (1981, 1990); Schon (1983, 1987); Kolb (1984); Marsick (1987); Marsick and Watkins (1990); Boud (1997); Boud, Keogh and Walker (1985); Aygyris (1990, 1993) and Garrick (1998) emphasised the importance of learning within an organisation in the workplace, as separate from learning within formal education. The inferences from this research on organisational transformation are that individual work-based learning can, under certain conditions, 'lead to organization learning and transformative change' (Henry, Mitchell and Young, 2001). The learning organisation philosophy has relevance to our work-based

learning programme by supporting student self-direction, independent decision-making and autonomy coupled with critical thinking and reflection. This may lead also to the transformation of the technical school.

Billett (1993, 1994); Brown, Collins and Duguid (1989); Lave and Wenger (1991); Vygotsky (1978); Wenger and Snyder (1998, 2000) and Young (2000) argued that organisations, and the workplaces within them, construct contexts for individual learning and 'communities of practice'.

Learning at work

Colley et al., (2002) examined a wide range of literature to investigate the concepts and dimensions of formality and informality. Their summation was that it might be more practical to look at how they connect and inter-react with one another.

Billett (2001a, 2001b, 2002) however, is critical of the terminology and contends that the learning is authentic and the learning outcomes are socially shaped whether the learning comes from everyday work activities or supervised learning. There are however, caveats Billett warns, as some workplaces do not give equal learning opportunities to all, and Down (2003) challenges the assumption that because a learner has been through formal learning at school the learner will be prepared for learning in the workplace. She advances the view that formal education is fashioned by rigid structures and established patterns, whereas workplace learning is fashioned by a pragmatic approach of trial and error and much reflection to solve problems.

In the enquiry we were interested to test the notion of learning through group practice, and had set up a workshop format to achieve this end. Learning in a group can be extremely effective and there has been a shift from what vocational students needed to know, to how students learn particularly at work. Vygotsky's (1978) studies on social cognition and Lave and Wenger's (1991) enquiries into situated learning and communities of practice have been the foundation for the recent literature on vocational learning. Vygotsky advanced the concept that learning can be a group

practice stimulated by the interaction of the participants in the group rather than an individual activity. Lave and Wenger (1991) posit that communities can promote learning by shared practice. They see the shared participation as a means of learning.

However, as we found in the workshop experience and as Smith (2003) reasons, for a community of practice to work effectively, it must be democratic and share knowledge, and resources among its members to demonstrate the requirements for lifelong learning.

Boud and Middleton (2002) examined the nature of learning in workplaces and who benefits. They reported that there is a very wide range of people who influence learning, many of whom are not official trainers or supervisors. They discovered, however, that not all workgroups are communities of practice and do not build identity and meaning. In the quest to understand more about the learning potential of the workplace and vocational learning and communities of practice there has been renewed interest in apprenticeship as a model for learning competencies (Fuller and Unwin 2001a, 2001b). Indeed, Gonczi (2002) proposes that the apprenticeship model should be the standard for all vocational learning as apprenticeship offers a community of practice where good judgement can be exercised, together with the practice that comes from experience in the real world.

2.4 Context and background to work-based learning

The literature reviewed in this section looks at work-based learning programmes that deliberately use the workplace as a site for student learning. The purpose of this review is to draw together literature on work-based learning from many educational sectors, industry sectors, and stakeholders. Although vocational education has traditionally had closer ties with the workplaces than either schools or universities, the literature on work placements in vocational education is curiously thin. It is essential that our students are conversant with the current standards of the workplace, which are demanding increasingly higher competencies.

Our enquiry was concerned with giving students better preparation for the workplace with a work-based learning programme, to provide a pivotal bridge between school and work and essential for getting young people to see the relevance of school and work.

Before launching into a discussion of the issues addressed in this study we begin by clarifying some of the terms that will be used throughout the enquiry. A review of relevant literature shows a lack of a consistent definition of work-based learning. The two-sided aspect to work-based learning can cause confusion. Work-based learning can convey the notions both of learning that takes place in the workplace, and learning that takes place for the workplace, or the employer more specifically (Glass, Higgins and McGregor, 2002).

Work-based learning is learning that takes place in a social context, in school, industry, office, or agency. Work-based learning is formal, structured, and strategically organised by instructional staff, employers, and sometimes, other groups to link learning in the workplace to students' work-based learning activities to their career goals. It is an umbrella term to explain a selection of student activities to learn about the world of work. These activities embrace structured work experiences, internships, mentorships, and community service learning occasions. Its prime purpose is to combine learning with practical, real life activities in the community, and to encourage students to commence lifelong career development.

An essential part of our work-based learning programme, and process was to create the right environment to enable students to understand the relationship, and link between school and work, so that they were able to better acclimatise and make the transition to the workplace. There are numerous definitions and descriptions and the following are relevant and apposite to this inquiry. Trigwell and Reid (1998) offer a definition developed at the University of Technology Sydney as follows:

> *A range of educational practices which involves students in authentic work settings. The curriculum is significantly influenced by issues and challenges which emerge from the exigencies of work rather than predetermined academic content driven requirements.*

Hoerner and Wehrley (1995) support a broader view of work-based learning and link education and work in one over-arching theme:

> *The knowledge learning imparted to every student from the beginning of schooling that maintains a theme or focus that people work to live and that there is a positive connectedness between the schooling process and living productive lives.*

This definition is sympathetic and compatible with the changes and philosophy we are striving to achieve through the work-based learning programme in Thailand.

Work-based learning should combine theory and practice. A significant component in our programme was a school-to-work transition programme which was designed to orientate and simulate work experiences in the working environment. It was important to fuse and correlate theoretical and contextual learning to give students a comprehensive foundation in the topic under study (Guile and Griffiths, 2001).

Moreover, the workplace can support learners in combining various types of knowledge, skill and experience, and can embrace apprenticeship, and school-based education (Guile and Griffiths, 2003). They describe the bridge between school and work as 'connectivity', and which educators explain as the relationships and contexts between school and work and the symbiosis between theory and practical knowledge (Guile and Griffiths, 2001).

In the United States work-based learning has been an accepted method to prepare students for the work site for twenty years, and it came to prominence in the 1980s with the low skill levels of entry-level workers and the demands of the rapidly

developing economy (Lankard, 1995). Our experience in Thailand accords with the definition from the US linking school to work, where the School-to-work Opportunities Act (1994) defines work-based learning as planned programmes of work experience linked to school curricula. It further specifies that work-based learning includes training on-the-job, supervision by workplace mentors, and instruction in general workplace competencies and all aspects of the world of work (Stasz and Kaganoff, 1997).

These work-based learning experiences are usually but not always school-credit generating. Hoerner and Wehrley (1995) describe work-based learning strategies that fall into two main categories: job-based and school-based. Work-based learning strategies, whether school-based or job-based, provide the school process with creative methods for delivering hands-on experience for all students; however, the importance of systemically reforming the total curriculum and educational system in order to meet the challenges of the twenty-first century should not be overlooked. Further studies refer to a wide spectrum of workplace activities including: formal training; competence development based on a formal programme or more informal experiential learning; work experience placements; secondments; unstructured self-study/development; and informal learning (HMIE, 2001), youth apprenticeships, job-shadowing, school-based enterprises, simulated work tasks, visiting work sites and service learning (Poczik, 1995); corporations helping teachers develop authentic problem-solving activities for the classroom; opportunities for work site visits by educators (Hoerner and Wehrley, 1995).

The focus of school-based learning is on individual performance, whereas in the workplace shared learning is emphasised. Schools focus on abstract concepts and symbol manipulation, whilst the workplace requires reasoning related to real events and objects. Linking and integrating school activities to workplace practices and conventions is a vital component of work-based learning (Resnick, 1987). Resnick (1987) also emphasises connecting the classroom to work and with adults in the workplace, helping students to see the relevance of what they are learning in school with skills and responsibilities in the workplace. Raelin (2000) proposed three

collective types of work-based learning: action learning, community of practice and action science. Work-based learning integrates theory with practice and knowledge with experience. It acknowledges that the workplace offers as many learning opportunities as the classroom.

Raelin (2000) endorses the view that work-based learning uses many varied techniques, but foremost is the deployment of action projects, learning teams, and other interpersonal experiences, such as mentorships, that permit and foster learning opportunities. Work-based learning differs from conventional training because it features conscious reflection on actual experience. Fundamental to the process is the notion of meta-cognition (Meisel and Fearon, 1996), which means that the researcher consistently thinks about the problem-solving processes. Peters and Smith (1997) refer to programmes of work-based learning as "throwing a net around slippery experience and capturing it as learning".

Certainly, a key aspect of work-based learning is the direct involvement of employers (Boyer, 2000). Work-based learning is regarded as particularly effective as it gives trainees realistic, hands-on experience and develops skills relevant to employer needs. Furthermore, to prepare individuals for work that demands autonomy and continual learning, many employers now call for education that promotes high-level thinking skills for all students, not just for the elite as in the past. Vocational education, which traditionally has offered practical training for students who were considered to possess relatively low academic ability, is now being reformed and in some places radically reconstituted (Boyer, 2000).

It is usually accepted as good practice for a preparation period to precede the practical experience and work-based learning usually takes place once you have participated in career awareness activities and exploration. These may include field trips, listening to classroom speakers, research, career assessments, and general work experiences (Sargent, 2002).

Work-based learning has to depend on individual needs. The form of flexibility is promoted by the learner's preference. They can choose their own area of study (Trigwell and Reid, 1998). In order to install a work-based learning programme in a vocational school, the school should be aware of the nature of the student, the workplace and the environment. The key to overcome weaknesses in student competency is in the construction of the course activities (Kazis and Goldberger, 1995).

Furthermore, the work-based learning curriculum is particularly influenced by the pressing need of what issues and priorities need to be addressed. It is not governed by prescribed academia-governed imperatives (University of Technology, Sydney, 1997).

2.5 The importance of situational placement in work-based learning

We are committed and convinced that learning in the workplace as Onstenk (1997) proposes will culminate in increased work competencies and the ability to solve problems in the working environment, which is also a learning environment. We believe it is paramount to straddle the school and workplace with a planned and strategic programme, and acknowledge that workplace learning and learning at school can be linked in various ways.

Among these experiences are working in teams, refining core skills, and learning the techniques needed to execute specific job tasks and sometimes sample the types of job available. It is now accepted that learners in the workplace can play a pro-active part in their learning and the notion that they had to play a passive role and 'soak up knowledge like sponges' is a false premise (Billett, 1994).

We acknowledge that there is an important link between the school and the workplace and our programme endeavoured to integrate activities at school and the workplace. Dearing (1997) endorsed this proposition by advocating stronger links and partnerships between educational institutions and the working community.

Moreover, Billett (1996) contends that learning's logical and most effective setting is the workplace, for it is in this arena that real problems arise and can be resolved and the workplace produces daily problem-solving activities which often cements and reinforces knowledge learned elsewhere. Furthermore, Billett (1999b) postulates that the research shows although learning in the school and workplace may differ, both environments were productive forums for practical learning and critical thinking. He stresses the importance of the diverse experiences that is crucial for development and not the location.

Smith and Comyn (2003) confirm "the importance of the workplace as a site for learning and developing employability skills", and "The development of employability skills plays an important part in human resource management and training packages".

Most of the literature tends to be positive and uncritical. The benefits of work placement are assumed. Research shows that the learning benefits of work placements include practical experiences of what they have learned at school (Benett 1989), and applying theory to real circumstances, and understanding, how practices evolve and change over time (Cleminson and Bradford, 1996). Moreover, students have the chance to learn from practice (Cleminson and Bradford, 1996), experience the real world (Schaafsma, 1996), improve themselves (Waryszak, 1999), create the potential for finding employment (Dow, 1996) and at least enhance employability prospects (Poustie, 1996). Furthermore, students are more motivated to study and learn (Kirschner, 2000) and employers have the chance to look at potential employees (Tilley, 1997).

Research into learning processes in practical learning stages in Dutch secondary vocational education shows a rich basket of learning effects that can be reached in practical training and learning (Onstenk, 1997). On some occasions, the placement puts the student into contact with consumers providing valuable customer servicing know-how and boosting levels of self-esteem. The experience at the placement will

often give opportunities to practise skills learned on-the-job and school and link between theory and practice (HMIE, 2001).

In our own experience, students were generally enthusiastic about the programme, and as Smith and Wilson (2002) conclude, work experience was thought of by students as a good way of sampling a career path. Furthermore, vocational placements were seen as good locations for learning a particular skill. Some generic skills were also best developed in the workplace namely verbal communication, behaviour on the job, and using initiative.

2.6 Reservations about work-based learning

There are clearly many benefits, in a properly conceived and administered programme, under the right conditions. However, problems can arise when the planning and implementation lack the appropriate structure. Reservations in the literature show poor treatment of students at the hands of employers in some instances (Cornford and Gunn, 1998), and the ineffectiveness of the training in some enterprises (Cornford, 1999) due to insufficient instructional expertise.

Joe Kincheloe (1999) believes that vocational educators have a role to play in how students perceive work and how this perception can bring about change in work practices. Vocational education's function hitherto in Kincheloe's perception trained students to acquiesce to management and company dictates and play a passive role. He calls for vocational education reform to prepare students to expect and be able to perform 'good work' practices in employment experiences. Kincheloe argues that students should become inquiring and curious and critical of their surroundings, and think independently, to be able to better understand their own practices.

The essence of successful placements appears to be adequate induction and preparation prior to going to the workplace, and then appropriate support and instruction at the work providers. Studies have shown that it is not sufficient just to get students out of the classroom and into the workplace to guarantee learning will

take place or will be transferred. Ill-conceived and badly delivered work placement experiences, just like poor instruction in the class room at school, can damage and de-motivate students (Goldberger, Kazis and O'Flanagan, 1994).

This is a very important issue and necessitates careful planning and supervision to maintain proper control and organisation in the programme implementation. Influence over the programme is of paramount importance.

The detail should be carefully worked out to avoid conflicts and misunderstandings. Work-based learning has to depend on each organisation's condition (NWO, 2003). For the vocational school the curriculum is essential to shape the programme direction. However, in some cases the school has little control over the curriculum in the workplace, which can lead to problems. Tilley (1997) describes it as " a gamble" and others also conceded that it was often fraught with difficulties (Ryan, 1997; Harris et al., 1995).

When the students transfer from school to the workplace there is a period of adjustment, and adaptability is essential. During this period, it is accepted that students need guidance when making the transition between school and work. Research on trainees demonstrates the difficulties experienced by VET students in the variations in learning between their school and work provider (Harris et al., 1998; Smith et al., 2000). It seems a problem of integration, with students battling to come to terms with the teaching styles.

Longitudinal studies of similar vocational programmes, such as VET in Australia (Misko, 2001; NCVER, 2000; Polesel, Teese and O'Brien, 1999) and Tech-Prep in the United States (Bragg, 2001; Hershey et al.,1998) demonstrate that properly administered programmes can help students make successful transitions. Work-based learning can depend on the individual's acquisition of practice. Limitations are defined by the person's capabilities. There are also significant variations in the quality of the placements, with some students learning a variety of skills while others are restricted to trivial tasks and others to observation only (Smith

and Harris, 2000). However, they add that they offer great potential where the objectives of placements are clarified, all stakeholders are properly briefed and committed, and issues and arguments are explicit and structured.

A major study carried out for the Australian Department of Education, Training, and Youth Affairs (Miles Morgan Australia, 1998) investigated the feasibility of expanding placement occasions. They discovered during the investigation a number of problem areas, which included cultural differences between school and work and a lack of student preparation prior to going to the work. For example problem-solving in school is typically well-defined as in solving arithmetical problems, whilst, problems at work tend to be ill-defined, often unrecognised as problems, and have many possible solutions and solution methods (Lave, 1991).

Nevertheless, Billett (1999a) maintains that participation in workplace practices is at the core of understanding learning through work. He suggested:

> *engagement in routine work activities may reinforce and refine existing knowledge, whereas engaging in new tasks may develop new knowledge.*

When they are properly planned, and managed, placements can provide fertile ground for students to experience the challenges, structures and codes of the workplace. Billett (1999b) cites Lave (1990) who found that tailors' apprentices learned by undertaking tasks which gave them increasingly more accountability. This resulted in them being exposed to the practical activities they needed for the work detail. The training involved progressive steps in the tasks they were required to perform. There was a deliberate pathway of learning through ascending levels of responsibility. The learning was structured and the practice progressive. OECD (2000) in a review of international literature concluded that there are common factors that contribute towards an effective school-to-work programme:

1. A healthy economy providing job-rich growth
2. Well-organised pathways that connect initial education with work and further study
3. Widespread opportunities to combine study with workplace experience
4. Tightly knit safety nets for those most at risk
5. Good information and guidance
6. Effective institutions and processes

2.7 Work-based learning to acquire workplace competency

It is important to appreciate that in today's employment market vocational students must have skills, qualities, and all-round competencies, which are portable from one job to another. All-round competencies are the key driver for a programme's effectiveness. Previous studies have shown employers today need a wide range of abilities, skills, and accomplishments.

Our primary concern in work- based learning was that vocational education should provide students with the attributes for employability. Smith and Comyn (2003) confirm "the importance of the workplace as a site for learning and developing employability skills". The development of employability skills plays an important part in human resource management and training plans. Lave (1991) supports the view that knowledge and skill are important to the extent that workers can apply them to real problems and situations they face everyday at work. Mayer (1992) defines the employment attributes as follows:

> *They are competencies essential for effective participation in the emerging patterns of work and work organization. They focus on the capacity to apply knowledge and skills in an integrated way in work situations. Key competencies are generic in that they apply to work generally rather than being specific to work in particular ways in particular occupations or industries.*

The Australian Chamber of Commerce and Industry and the Business Council of Australia (2002) carried out an extensive enquiry into employer's requirements for employability, and the associated skills necessary for employment. The research revealed a number of attributes or generic skills, which they preferred to term employability skills. These were described as:

> *skills required not only to gain employment, but also to progress within an enterprise and contribute successfully to enterprises' strategic direction. Employability skills are also sometimes referred to as generic skills, capabilities, or key competencies.*

NCVER (2003) reports the ever-increasing focus and demand by employers for generic skills in Australia and worldwide. Vocational schools increasingly must create and develop training packages[1] to meet the demands of the labour market. They must focus on grooming the students to become 'work ready' in their generic skill capability.

However, there are variations in different countries as to what employers need in skills and attributes. Joyce (2001) encapsulates the need succinctly by suggesting:

> *Generic skills, soft skills, behavioural skills, enterprise skills, key competencies, core skills, employability skills, people skills-many names for the same thing. Basically, they can be defined as those skills that are common to many vocations and are not specific to one job or industry.*

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[1] In the Australian context a training package is an integrated set of nationally endorsed standards, guidelines and qualifications for training, assessing and recognising people's skills, developed by industry to meet the training needs of an industry or group of industries (from the National Centre for Vocational Education and Research).

Kearns in his report (2001) (see figure 1) summarises the attributes needed by employers in four key clusters which lead to 'personal mastery, autonomy and self direction':

- Work readiness and work habits
- Interpersonal skills
- Enterprise, innovation and creativity skills
- Learning, thinking and adaptability skills

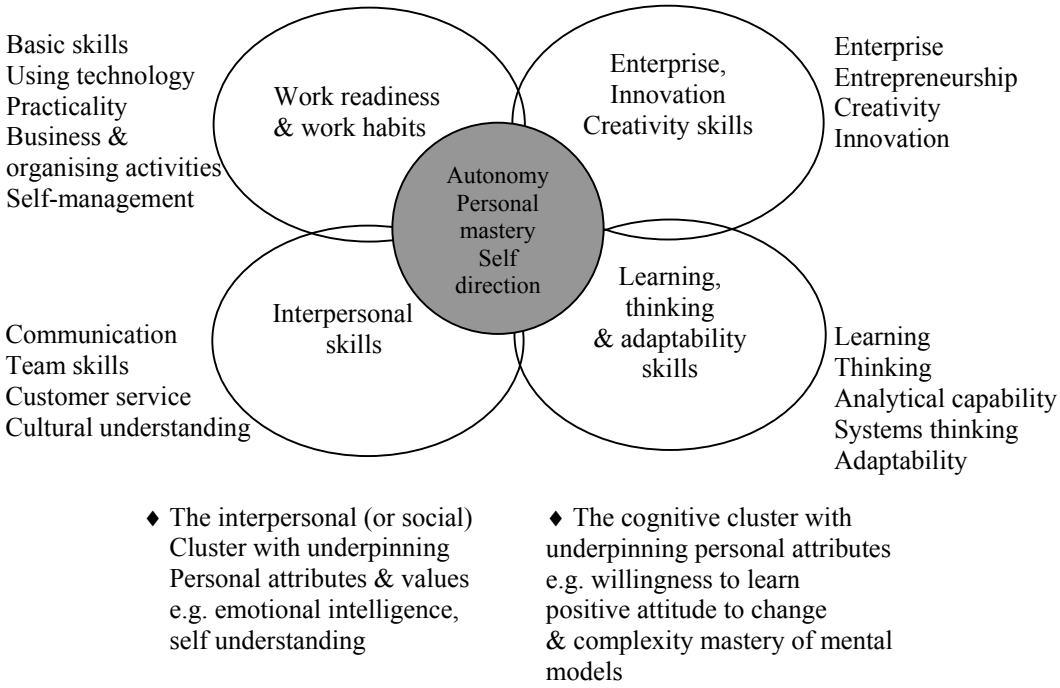


Figure 1 Clusters of key generic skills

(Kearns, 2001)

On the other hand the pragmatic view is one which is sensible in the climate of today, that employability is about 'gaining initial employment, maintaining employment and making transitions between jobs and obtaining new employment if required' (Hillage and Pollard, 1998). CBI (1999) defines the qualities and competencies which make up employability as:

Values and attitudes compatible with work opportunities
Basic skills
Defined core skills
Customer service skills
Up-to-date job-specific skills and knowledge,
and career management skills.

Vocational education tries to keep abreast with the labour market trends. The volatile nature of the market makes it difficult to cover the full range of competencies in technical proficiency. How can work-based learning serve that demand?
Work-based learning can help students acquire generic workplace skills—skills and competencies that are required for most jobs, as distinct from technical knowledge (SCANS, 1991). Generic skills comprise: problem-solving, communications, and teamwork (Stasz, McArthur, Lewis and Ramsey, 1990; Stasz, Ramsey, Eden, Da Vanzo, Farris and Lewis, 1993; Stasz et al., 1996).

However, the issue of how generic skills should be taught is complex. I am persuaded by Dawe (2002) who concludes from the research that generic skills training and technical skills training should be integrated. She reasons that the integration of generic and technical proficiencies makes both mutually dependent and relevant to one another in the workplace context. Moreover, seeing how generic skills relate to the job has a motivating effect. She believes a careful balance of work experiences and learning strategies are essential to produce the desired technical, generic, and transferability of skills to new environments. Waterhouse and Virgona (2004) support this view and emphasise:

> *Generic skills are those which transfer across vocational areas to enable individuals to work effectively with others, to contribute to the organisation and to achieve personal satisfaction.*

They also make the point in their report that there is not one list of generic skills that is common to all work functions.

However, most commentators agree that the role of teachers and trainers is critical in providing effective training packages to develop the appropriate generic workplace skills (Callan 2003, Waterhouse and Virgona, 2004).

Our study revealed that employers expect the vocational school to play a major role in training and preparing students with the appropriate work-ready attributes (Gibb, 2004). We were aware that there is an urgent need to train our teachers to be able to develop adult learning strategies in generic skill pedagogy (Callan, 2003; Sanguinetti et al., 2004). The professional development of teaching staff is crucial to be able to promote the importance of generic skills, and ensure students understand their relevance in the context of employment (Callan, 2003; Sanguinetti et al., 2004).

However, a cautionary note should be recorded about the role of the vocational school. Increasingly it has been asked to supply students with the skills and attributes determined by the employers. Payne (2000) and Kincheloe (1999) are critical of the power employers wield over vocational institutions. This view is supported by Virgona et al., (2003) citing Payne who warns that "We have reached a point…where skill means whatever employers and policy makers want it to mean"(Payne 2000). Some commentators point out that there are employers who seek 'aesthetic labour', where hairstyle, dress, accent, and body shape are pre-determined requirements. The VET sector has to ensure that it resists the more extreme employer driven demands to avoid accusations of inequality and discrimination. As Payne warns:

> *Not only does this promise to cast the VET system in a new and unfamiliar role of speech training and personal grooming 'makeovers', but the fact that individuals may be expected to have their personal and class based identities re-engineered in this way raises major ethical concerns (Payne 2000).*

Training packages are acknowledged in the literature (Gibb, 2004) as an effective method to incorporate and deliver generic skills. Tess Julian (2004) in her contribution to *Generic skills in vocational education and training-Research readings* (Gibb, 2004) looked at various strategies to promote generic skills learning. She described how 'dedicated' and 'embedded' units are used as models for teaching

generic skills. Both models teach exclusively a generic skill function. In the embedded unit model the generic skill function is incorporated into the technical application or the work function.

An innovative strategy for teaching generic skills, developed in the United States by Alverno College is that of self-assessment (Denton, 2004). This approach has been adopted by Torrens Valley TAFE in South Australia. Learners assess their own competence in a given generic skill. Teachers then validate the assessment which gives it the authenticity and recognition the student requires. Giving learners the responsibility and control of their own learning including assessment is an established educational benefit and according to Loaker (2000) at Alverno College the ability to make self-assessments generates further learning and a capacity to switch their learning into new contexts. Denton (2004) believes generic skills are more effectively absorbed through flexible learning, and giving the learner"empowerment to discover for himself the generic skills he must acquire in the workplace, the community, and in life".

2.8 The benefits of work-based learning

The literature of benefits over the last ten years is well documented and authenticated evidence has accumulated from all over the world. There are various benefits of work-based learning from research reported from school students' views of their working and learning in the workplace.

Several studies show that work-based learning can help students acquire specific job-related know-how or skills (Bragg, Hamm and Trinkle, 1995; Pauley, Kopp and Haimson, 1995; Urquiola et al., 1997), as well as knowledge of all aspects of an industry (Goldberger et al., 1994; Hamilton and Hamilton, 1997; Nielsen Andrew, 1996; Stern et al., 1995). Furthermore, work-based learning offers essential information about jobs and careers that students cannot otherwise obtain, which can in turn affect their course of study and decision to pursue higher education (Grubb and Badway, 1995; Pauley et al., 1994; Pedraza, Pauley and Kopp, 1997). One of the

principles of work-based learning (cited in Harmon, 1999) is the provision of opportunities for career exploration and information on related careers; advising students about career paths, and co-ordinating planning with particular attention to post-secondary transition.

Experiencing the work environment not only exposes students to the possibilities of jobs and careers, but the experiences also help students connect classroom studies to practical applications of those studies in the workplace. In addition to learning technical job skills, students can enhance personal and social competencies related to work in general (Hamilton and Hamilton, 1997). Sargent (2002) suggests that work-based learning programmes "can help create a pool of qualified future workers and reduces employer training costs and helps employers and educators share resources".

New York State apprentices, indicated that their pride and self-esteem rose as their knowledge and skill level increased (Hamilton and Hamilton, 1997), and they became more self-assured in their skills, and were encouraged to try new things (Stasz and Kaganoff, 1997).

Peria Public School students reported that they had become more interested in school since entering the programme. Additionally, the Botanic Garden Project increased the complexity of their learning and gained a sense of accomplishment by doing so (Miller et al., 1995).

There is strong evidence that work-based learning encourages career opportunities. Reviews show that students can gain more chances to develop their employment choices. Students in school-to-work programmes are exposed to many different career development activities. These students were significantly more likely than randomly selected comparison students to participate in both school career development activities, such as receiving instruction on how to act on the job, and out-of-school development activities, such as career-related field trips (Kemple, Poglinco and Snipes, 1999). Stasz and Kaganoff, (1997) reported that during their work-based learning experiences, students learned how to behave in a professional

environment and to work well with other people. Students in various work sites learned to understand the social expectations of work, and to behave in ways that were appropriate for their jobs.

They were likely to view work as a way to learn new things and prepare for the future. In qualitative studies, students commented that they discovered the value of learning how to learn through their experiences (Hamilton and Hamilton, 1997; Stasz, 1999).

Indeed, work-based learning strategies can be used to introduce training to bring about change in workplace procedures, with advice and guidance from educational practitioners on the design of the curriculum (Sefton Waterhouse and Deakin, 1994).

Work-based learning can motivate and encourage students to acquire improved technical skills at the workplace. Technical ability and know-how should include perfecting procedure; conversance with basic principles and concepts underlying procedures; developing analytical ability; and, in many employment designations, computer literacy. Technical ability and know-how also includes learning how to learn, in addition to practical activity. Ultimately, students should be aware that specific work skills are a base for further learning, not a finishing point (Hamilton and Hamilton, 1997).

A common theme in the research shows that an essential element of work-based learning activities, is the connection to the school curriculum, so that students can see how the skills they learn in class are needed in the workplace and have a chance to apply those skills (Hershey et al., 1998; Stern, Finkelstein, Stone, Latting and Dornsife, 1995; Goldberger, Kazis and O'Flanagan, 1994: Council of Chief State School Office [CCSSO], 1994).

Some studies have shown that properly integrated programmes offer students a contextual base for understanding how skills learned in school are useful and important in work, thus enhancing their school learning (Hamilton and Hamilton, 1997; Stone, Stern, Hopkins and McMillion, 1990). Moreover, other studies found

that work-based learning galvanised and motivated students who were otherwise disaffected by school and motivated them to stay in the school (Phelps, Scribner, Wakelyn and Weis, 1996; Urquiola et al., 1997; Sargent, 2002).

Moreover, integrated programmes between school and work can be effectively combined, and many countries have put a great amount of effort during the 1990s to expand the opportunities of school organised workplace experience.

A study by the International Institute for Educational Planning by Atchoarena (2000) found an integration of workplace and school activities can be important for a variety of reasons:

- It introduces students to employers.

- The quality of learning improves as it is applied and relevant.

- It develops skills and knowledge related to work.

2.9 Examples of work-based learning programmes

In Canada a major school-to-work programme was undertaken in Nova Scotia between 1995 and 1998. The aim of the study was to evaluate the effect a work-based learning programme had on students' employability and skill improvements. The research indicated that the most significant element in the school programme was the workshop format that was introduced to get away from the classroom ethos and try to replicate the work environment as closely as possible. Students rated this method of training very highly. Although the study results were modest in terms of what had been hoped to achieve, it did signal some important themes. The programme transformed the high school experience for many of the students. It was something they looked forward to, compared to 'normal' school. They perceived the programme as relevant and interesting. It also made them think about the future and their careers. It exposed students to the world of work and its culture. Finally it brought schools

and industry together and made both parties reflect on the pathways to best prepare students for working life (Thiessen and Looker, 1998).

Researchers at the Manpower Demonstration Research Corporation looked at sixteen programmes in US schools and based on their field research identified key elements necessary to produce quality work-based learning. The elements start with the partnership goals between the school and work provider and the structure of the school-based and workplace programme. Student learning at the workplace should proceed according to a structured plan. The workplace can promote broad transferable skills. School-based activities can help distil and make relevant the work experience. Assessment of the student performance is conducted at the workplace. The programme provides the correct preparation for the work site, and students receive appropriate support mentoring, and counselling during the programme. Proper orientation and training should be given to both school and work site staff (Goldberger, Kazis and O'Flanagan, 1994).

In New Zealand an extensive study into student transition to the workforce was conducted in 2002. A programme was created with an in-school component followed by a work placement in an occupation of the students' choice. Teachers commented that the programme had assisted the transition in a variety of ways. Primarily it made students understand and realise the link and relevance of school and work. Furthermore it introduced students to the culture of the workplace and made them think about their own career prospects. Students interviewed found the programme practical, relevant and fun. Above all it was motivating and they considered it would lead to finding an appropriate job (Boyd, McDowall and Cooper, 2002).

Another study found that work experience and on-the-job learning placements had produced positive outcomes. Student attendance and retention had improved; the students were more motivated, and the variety of experiences had given the participants renewed hope for the future (Skill New Zealand, 2002).

A recent survey of vocational education and training in Denmark, Holland and New South Wales (HMI, 2004) revealed some important differences compared to England. Teachers of vocational courses in the three countries surveyed are required to have served time in industry and their knowledge is kept up to date with regular placements. This means the teaching content is relevant to current commercial and industrial standards and that there is a continuous working relationship with employers. Furthermore through these relationships with employers the content and evaluation of vocational courses is given standing and status as the employers have a major in-put to ensure the vocational provision meets the employers needs, and the needs of the economy.

In 2002, the *Vocational Learning Support Programme (VLSP)* in the UK reported a unique vocational pilot training programme delivered through public and private partnership. A training programme was needed, that would transform hitherto under-achievers with scant experience of the workplace, into credible work-ready potential employees for renowned city names. The students would need both technical skills to handle entry-level IT work, and most importantly the soft skills that would be necessary to be able to function in a corporate environment. Employers have reported good employability skills and motivation, and two participating companies have identified real vacancies for their students.

An evaluation of the programme showed a number of guiding principles. The pre-screening of student candidates for aptitude contributed to the high success rate and has led to a forecast of securing a job for all participants. The close co-operation and motivation by the employers made sure the curriculum was relevant and up to date. The project helped the college understand the skills and behaviour needed by students to make them ready and equipped for the job market. Moreover the learning from the study will help the college develop further programmes (DfES, 2002).

A report on Scottish Further Education Colleges found that students on an electrical installation course were able to integrate knowledge and skills learned at college with

those learned in the workplace. The workplace experience served to develop and reinforce the college learned knowledge (HMIE, 2001).

In the USA, participation in the *Lansing Area Manufacturing Partnership (LAMP*) improved and enhanced the general employability skills of the students. The principal accomplishments were in job-related communication skills and technical competencies (MacAllum, Taylor and Johnson, 1999).

2.10 How action research is appropriate methodology for a work-based learning programme

A major consideration in our study was to change and transform our professional practice, as an institution and as VET teachers, through action research. Previous investigations have found work-based learning methodologies have enhanced professional development (Mitchell, Henry, and Young, 2001).

Action research has played an ever- increasing role in the methodology employed by work-based learning. In much of the literature work-based learning and action research are intertwined and follow the same methodology. The literature shows that work-based learning is continually evolving, and is not a static theory. It has been developed and refined and has been enhanced by theories concerning learner-centred education.

For example Henry et al., (2001) propose that work-based learning and action research are interconnected components of a suitable model for use in professional development. The study found that action research/action learning is work-based and iterative through experientially based cycles involving work practice and action theories.

In other words, work-based learning is a form of action research because you are learning from your actions through reflection, planning and repeating the actions. Many studies incorporate reflective practice methodology with work-based learning.

For example at Middlesex University in London the research methodology advocated for student projects is action research and action planning. Reflective practice is one of the principal activities in the action research spiral and is a fundamental discipline required. The art and practice of reflection is a theme common to work-based learning and action research.

Raelin (2000) considers reflective practice as a central tenet of work-based learning and suggests reflection is the art of stepping back to cogitate the meaning to oneself and those others within your ambit. The relatively intimate and revealing nature of action research's reflection and introspection could have posed problems for my research when dealing with my student cohort and Raelin's comments are especially pertinent to the Thai nature and disposition. The Thai is reluctant to reveal his true feelings and show emotion to others, especially in a formal working community.

Raelin makes the point that in some cultures "professional competence and information are seen as personal possessions" and there is a reluctance to openly share information. Furthermore, debates and forums which might reveal weaknesses or could result in a 'loss of face' are avoided whenever possible. It is also prudent in some Asian countries to mask one's feelings and thoughts, and refrain from prying and laying bare the innermost thoughts and feelings of others (Raelin 2000). However, the work of Arphorn Chuaprapaisilip (1989) at the Department of Medical Nursing, Prince of Songla University in Thailand shows reflective practice can transfer effectively across cultures. Her action research study moved the traditional approach to learning through observation, remembering, and copying to a critical strategy of reflection on experience. The results according to Chuaprapaisilip improved learning practices and enhanced the quality of nursing care.

A review of the literature generally acknowledges Kurt Lewin (1946) as the founder of action research. Lewin rationalises action research as a 'spiral process of steps comprised of planning, action and evaluation of the result of the action' (Kemmis and McTaggart, 1982). There are numerous definitions of what action research is, but the following are apt and easily assimilated:

McNiff, McGeady, and Elliott (2001) define action research "as a concept, which refers to a process of people taking action on a problematic situation, thinking about what they are doing, deciding that they might do it a better way, trying it out, reflecting on that action, and continuing with the way they feel is now better practice".

However Kemmis and McTaggart (1982) propose:

> *Action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out.*

As the words imply 'action research' is about researching an act or series of acts. The researcher is however the main protagonist in those acts. Work-based learning can use action research as a process of implementation, and evaluation. Reflection is used to develop and improve the process.

As a guide to action research practice, the *Action Research Planner* (Kemmis and McTaggart, 1982) provides a way of thinking systematically about what happens in the school or classroom. Critically informed action is implemented where improvements are thought to be possible, and monitoring and evaluating the effects of the action with a view to continuing the improvement.

Lawrence Stenhouse (1975), who directed the Humanities Curriculum Project in the UK., believed, that the curriculum organised in schools, ought to be meaningful and relevant to students' experience, and they should be encouraged to take on the responsibility of their own learning. He also promoted the idea of 'Teacher as researcher'. He advocated that teachers are the best judges of their own practice, and therefore the best researchers of that practice.

The plan adopted at the University of East Anglia advocates precise guidance in the form of actions to implement and is in a format of action steps. The most renowned planned structured formulae are found in Kemmis and McTaggart (1982).

McNiff (1988) however, believes that a rigid format does not help teachers to develop their practice and puts forward the proposition that teachers should be encouraged to think for themselves and consider how best to improve their own situations. Whitehead (1989) for example developed an alternative plan where the individual is at the centre of the enquiry. He stressed the importance of the living 'I' otherwise researchers might advance theories which do not have relevance to educational practice.

Action research has been used widely to improve standards in vocational programmes and facilitate the connections between school and work. A major study for the Learning and Skills Development Agency in the UK (Smith, 2004) identified closer co-operation and partnerships between employers and schools as a pre-requisite to improve the quality and provision of work-based learning. The report recommended practical strategies to accomplish effective partnerships and was one of four publications resulting from the action research projects commissioned by the Learning and Skills Development Agency in 2002/03.

Each project explored the connection between educational research and practice using action research to support and encourage various activities (critical reflection, professional/learner development; curriculum development and institutional change). Performance quality was the primary objective and practitioners were able to analyse a given set of practices with a view to improving those practices (Smith, 2004; Maynard and Smith, 2004; Natrins and Smith, 2004; Sadler and Smith, 2004).

Smith argues that in this situation action research has the potential to engender real and lasting improvements as those conducting the action research were able to reflect upon and evaluate their actions and try out new ideas and methods.

2.11 Conclusions from what the literature review has shown

It is clear that with the ever changing and evolving workplace the vocational school must have a close working partnership with that workplace to keep abreast of what the labour market needs to shape the workforce of the future. The vocational school curriculum and school-to-work transition programme will need to adapt and refine to accommodate the dictates of the time.

The global evidence suggests that effective work-based learning programmes on a national scale can only be achieved by collective effort and will on the part of all the stakeholders, including governments. The infrastructure and support systems must be in place to execute the programme on any scale together with the budget implications allied to it. The enquiry in Thailand was conducted on a very modest scale and within very limited budget parameters.

Vocational schools should view themselves as a service industry to the labour market and therefore provide what the labour market requires. The curriculum should be practical in terms of being work-oriented and teach competencies which are relevant to everyday work. It should not be merely content based and steeped in academia which has no relevance to everyday work. The work-based learning paradigm is continually evolving and is in itself a revolution in educational thinking. It is emphatically linked to the needs and ambitions of the workplace and is not in isolation without a link to everyday work practices.

The research literature has revealed that certain principles should be observed to be able to execute a properly balanced work-based learning programme:

- Prior to the work placement stage a school-based preparation period should be conducted to imbue the students with the appropriate attitudes and workplace mores, together with basic technical proficiencies.

- Induction/orientation seminars must be run to prepare the students.

- The work placement activities should be properly integrated with the school-based experience.

- The student cohort should be vetted for aptitude and motivation prior to recruitment to ensure a measure of uniformity for instruction and assessment purposes.

- The work providers should be able to deliver an appropriate standard of instruction with particular regard to health and safety codes at work.

- The school staff should have had appropriate experience of workplace practices.

- Adequate systems should be in place to be able to assess the student performance.

- An appropriate support system be implemented through experienced supervisors.

It is now apparent that there is a renewed imperative for vocational schools to provide generic skills training, due to new technologies, the knowledge-based new economies, and globalisation. The school must ensure that it has the teaching resource capable of meeting this imperative and provide the professional development investment in their staff.

This study focuses on the importance of learning in the work environment. The review indicates that work-based learning can play a vital role in vocational education, and can make a significant contribution to the performance of students, school staff, and stakeholders. The research into programmes to prepare students for the workplace in Thailand is very limited. This enquiry seeks to fill this gap by providing knowledge and understanding of what a work-based learning programme can achieve, and how it can contribute to the preparation in attitude, knowledge, and skill development for students' future careers. Moreover, it appraises the outcomes of work-based learning programmes, reflecting on the strengths and weaknesses for

further development. It is hoped the study will establish a model for further research into work-based learning in Thailand.

Throughout the world, there have been radical changes in vocational education in the last two decades. As a work-oriented society we have realised it is imperative that a systematic shift be instigated to change from content-based learning to contextual work-based learning if the future work force is to be effective. However, the literature reveals that just providing work experience is not enough. There must be a bridge between school and work so that students can see the relevance of their school activities. It is also evident that a portfolio of portable skills is now required as the notion of a job for life is obsolete. Technical proficiency in a job is only the start of building a skills portfolio to which a collection of mandatory generic skills must now be added.

CHAPTER 3

METHODOLOGY

3.1 Context

The research procedures and methodology are presented in this chapter. The primary focus of the study was to investigate the effect a work-based learning programme had on vocational student attitudes and perceptions, and evaluate the potency of such programmes to effect change, emancipation, and vocational school development to prepare students for working life.

This enquiry, therefore, follows the broad objectives of the Thai government initiative, as described in chapter 1 by implementing a research study to find out how to improve vocational student preparation and development using a work-based learning programme.

We are striving to change and emancipate the ways our students, teachers, and the working community perceive the function of the vocational school in order to achieve a better student performance and mindset for the world of work, and provide a more productive and progressive learning environment.

The teaching processes hitherto had relied on a rigid structure of imitation and rote learning which had stifled intellectual curiosity and creative thinking. I sought a process which was interpretive, pragmatic, and democratic. It should involve all the relevant participants in the investigation, and should also give the participants empowerment, and control of their own destiny. The action research paradigm was the most appropriate philosophical and methodological approach to conduct the enquiry, as I could act as facilitator, and observer in the enquiry, and reflect upon my own professional practice. The study had an action aim and a research aim, and fits Dick's definition:

> *An action aim (to bring about change in some community or organisation or program or intervention); and a research aim (to increase knowledge and understanding on the part of the researcher or the client or both, or some other wider community* (Dick, 1992).

Our action aim was to change the teaching and learning practices within our organisation. Our research aim, by reflecting on those practices, was to evaluate the reforms in our teaching methods, and assess how the changes affected our students' learning.

We identified our student problem in a variety of areas, and realised we had to install a programme, to develop a wide range of reforms. Action research made us examine closely our actions and motives, and the repeated cycles of reflection, planning and implementation ensured circumspection, and rigour.

Our overall research interest neatly matches the Kemmis and McTaggart (1982) summation:

> *action research has been employed in school based curriculum development, professional development, school improvement programs, and systems planning and policy development.*

We needed to test the assertion that a work-based learning programme could enhance and facilitate the career potential of our students. By action research the school as a body could actively engage in the process of planning, acting and then reviewing the action, before repeating the cyclical process two times or more.

At each step in the evolution the action is repeatedly assessed and emboldened by fresh ideas and further planning. By this ever-evolving process the way we view things alters and is re-valued and re-appraised.

Nita Cherry puts the process succinctly:

> *During the action research cycle, experience is continually recycled; earlier experiences and data are revisited in the light of accumulated data; new action is planned in the light of what went on before, and all experiences are systematically reviewed and evaluated* (Cherry, 1999).

The programme involved all the stakeholders and pursued a democratic process, which is recognised to be a key facet of action research (Carr and Kemmis, 1986; Zuber-Skerritt, 1992; Kemmis and Wilkinson, 1998). A well-known approach to the theoretical explanation of western democracy focuses on the philosophical tradition of critical theory. The eminent German philosopher Jurgen Habermas is acknowledged as one of the foremost proponents of critical theory in the world today. Habermas has provided a theoretical framework and foundation to the methodologies instigated by many action research practitioners. Critical theory has been enhanced particularly by researchers at Deakin University in Australia in the 1980s and 1990s. Carr and Kemmis (1986) based their theoretical approach to action research on the work of Jurgen Habermas (1971). This concept of action research stresses the importance of the collaboration, emancipation and empowerment of people.

In the view of Carr and Kemmis three different perspectives of action research exist in three autonomous interests of knowledge: technical, practical and emancipatory. The technical interest of knowledge according to Habermas aims at the material reproduction of society.

I believe our primary aim in this study is to increase the efficiency of our educational practice, and thus the learning opportunities of our students. The study therefore is primarily technical action research. Technical action research in education aims to increase the efficiency of educational practice and teachers' professional development, resulting in more effective practices. The researcher begins the research study with an idea or hypothesis to be tested. In our study we started with the proposition that a work-based learning programme can contribute to vocational students'education by learning new skills to increase their employability prospects. This proposition was then investigated to validate the thesis and further ideas

presented to improve and refine the process. The model therefore follows positive interpretive paradigms, and is characterised by a deductive approach.

This project investigated how a work-based learning programme can enhance and gratify the career aspirations of students in vocational education. Moreover, by an action research enquiry it sought to develop and evaluate an industry based placement programme as a key instrument of vocational education development in Thailand to identify and overcome problems and obstacles in implementing such a programme. The action research enquiry was participatory and collaborative and involved the school stakeholders, students, teachers and myself. My role in the enquiry was purely that of observer/researcher.

The aim was to effect an emancipatory outcome to change the way our students view their learning processes, and through a practical work-based learning programme acquire the skills necessary for their chosen trade. We wanted to change our practices to resolve a serious problem within our school and take action to improve the situation (McNiff, Lomax and Whitehead, 1996). Moreover, it was intended to change the way the school prepares students for working life and through the process of collaboration and reflection all the participants involved learned about their practice to promote professional development

In this enquiry the quality of the data collected by action research was crucial, because the change we are trying to affect will contribute to the knowledge and teaching of vocational education in Thailand. The research findings will contribute to the development of vocational education through a work-based learning programme. The principles that have governed our programme have been directly influenced by the literature. The use of action research as a methodology is entirely appropriate in a work-based learning programme, because action research and adult learning theories are interconnected to work-based learning within an organisation. Work-based learning, in the form of action research (Huse and Cummings, 1985; Clark, 1989; McLennan, 1989) is perceived as a methodology where an organisation, like a school, can continually reflect on its own practices.

Peter Vaill (1997) proposes that work-based learning can have special criteria: The learner is asked to create on the spot to find and resolve problems. It is self-directed and demonstrative. Learning occurs in the process of doing it and expressing it. All facets of the experience, especially explicit performance, are engaged.

3.2 Student sample to be studied

The action research enquiry followed two cohorts of ten high vocational students, aged between eighteen and nineteen in the electrical power faculty, and data were collected over an eleven month period and analysed and evaluated over two cycles. The electric power faculty was chosen because their disciplines cover a broad range of job types and skills. The project gave me a comprehensive view of different job skills, the attendant problems of training, and presented me with research data to evaluate the effectiveness of the work-based learning programme.

3.3 Data collection

Several methods were used to collect data: focus group interviews, participant observation, in-depth interview, student journals, and teacher and work supervisor assessments (see appendices A, B, C, D). The use of multi-method strategies enhanced the credibility of the data (McMillan and Schumacher, 2001).

At the start of the programme, data were collected via a search conference, observation field notes, and a focus group interview was conducted to find out the students' opinions of their competency needs for their future careers.

Thereafter, I spent time as an observer in both the school and workplace settings. Field notes were written at the end of each observation describing in detail the setting and activities of the work-based learning programme.

In-depth interviews were held with students, teachers and employers. The purpose of these interviews was to allow those involved in the programme to describe in detail their perceptions and interpretations of the experience.

Each student recorded their experiences and feelings about the programme in a journal on a weekly basis and indicated where they had made progress and where they needed to improve, and any problems they had concerning the programme. The journals were recorded, during the school-based and work placement parts of the programme. Additionally teacher and employer assessments were made on the student performance during the school-based period, and at the work sites.
The performance levels were assessed against appropriate job competency criteria.

3.4 Data analysis

Triangulation was used to validate the data from a number of different collection instruments as previously described. Flick (1992) suggested that triangulation has generally been considered a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation.

Two modes of qualitative data analysis were used. The first used a continuous descriptive process of observation in the field, and visual devices. The other involved analysis after data collection where the data were classified and categorised and interpreted.

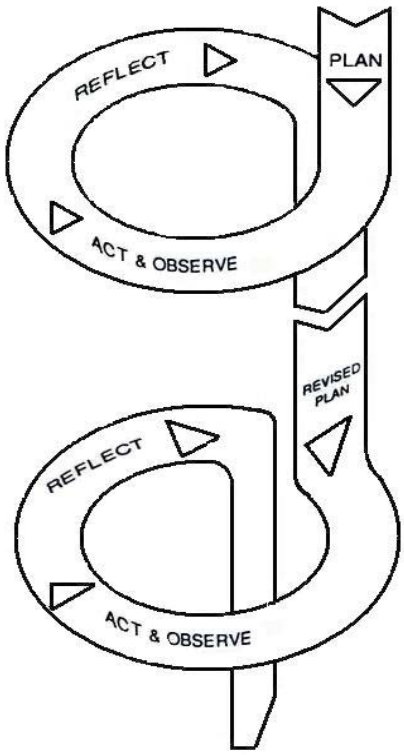
Methods used to analyse the qualitative data were descriptive statistics (means) and comparisons (t-test). Results were considered statistically significant at the .05 level.

It is important to comment upon the reliability of the measure of the teacher and employer assessments. Although different supervisors were involved in relation to different workplaces, the same teacher was involved throughout the programme. Moreover, the student sample was randomly chosen and is representative of the faculty body as a whole. The t-test data, on their own are not valid indicators of the

success of the placements. However, when considered together with the data from observation, student interviews, supervisors' reports, student journals and other qualitative data, then the conclusions are sustainable.

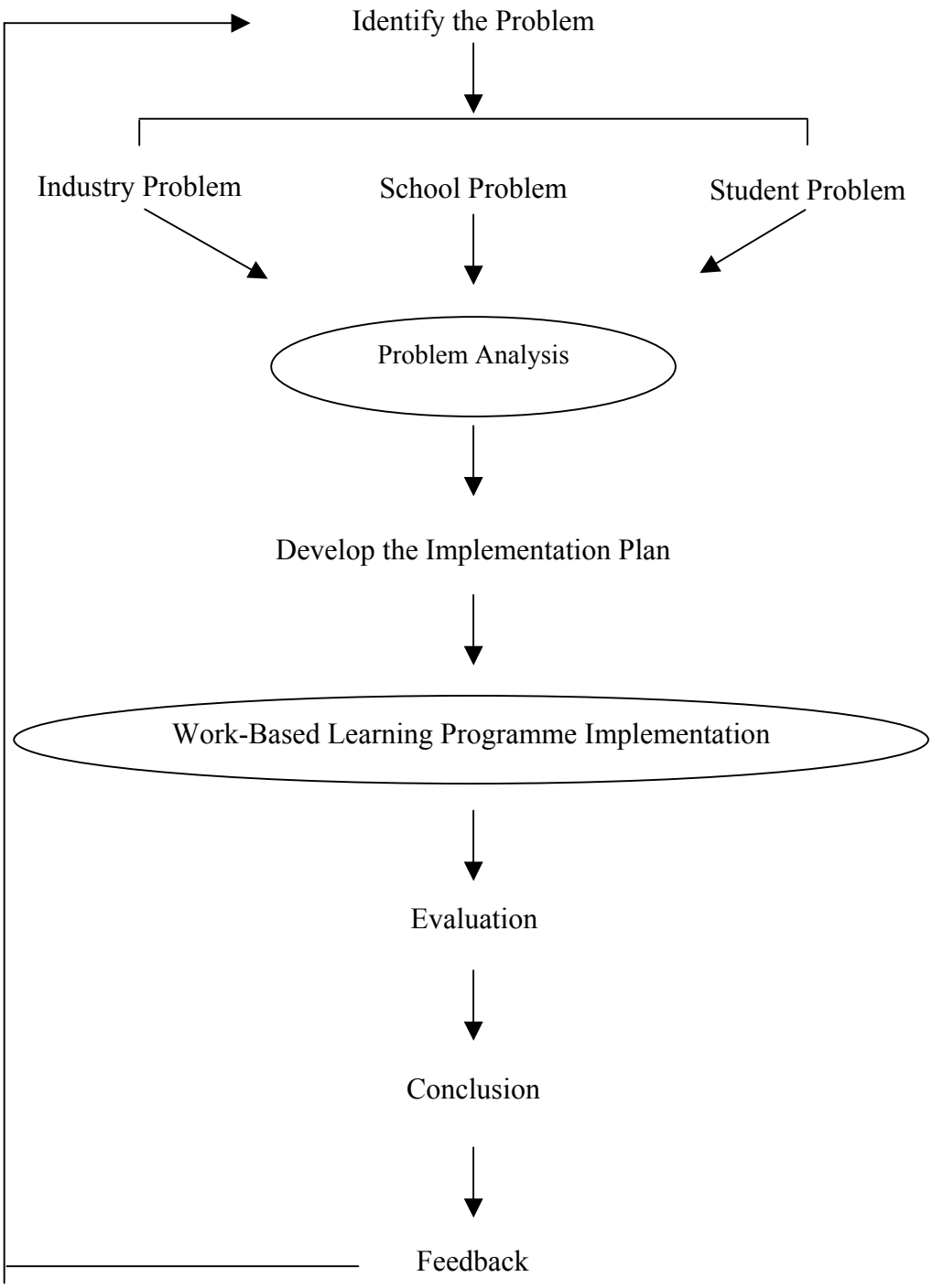
3.5 Action research cycles

In consultation with all stakeholders, an appropriate work-based learning programme was developed. The programme ran over eight months in two cycles of four months. A cohort of ten students participated in each cycle (see figure 2). A schematic plan of the development process in the work-based learning programme is illustrated in figure 3.



Action research cycle of work-based learning programme

Figure 2



The process of work-based learning development

Figure 3

3.6 Cycle 1

3.6.1 Search conference

Context

The search conference was conceived to consider the current vocational curriculum and methods of preparing students for the workplace and recommend a strategy to overcome some of the problems facing the Thai vocational system at present.
A meeting of all the stakeholders was held in December 2002 to debate and formulate a strategy for the future in accord with the Thai Education Act to effect change and to direct the emphasis toward learner-centred instruction.

The stakeholders were drawn from industry, the community, parents and school staff. It was decided not to include students at this stage, as they would have the opportunity to state their position through focus groups. It was considered that the search conference process might intimidate students.

The primary objective, as stated was to guide and plot the strategy under the guidelines of the school charter, and to construct a framework to produce the skills necessary for employment, encompassing, academic, generic, and life skills considered to lead to good citizenship. Furthermore, the stakeholders considered the needs highlighted in the DOVE 1998 report on Vocational Education Reform in Thailand. The report signals dissatisfaction with the quality of students being produced and states a significant number of graduates have weaknesses in both theory and practice. It concluded that issues of curriculum and the process of training should be addressed.

The stakeholders commented that vocational students in Thailand are complacent and lack career aspirations. They have no understanding of what the workplace requires, have no career plans and lack an awareness of the importance of work competencies.

The students lack a foundation of workplace know-how and behaving properly in that environment.

The students lack motivation and do not have any appreciation of a career path. There is incompatibility between what they are taught at school and what industry requires. There is a gap in student employability skills, which needs filling.

The consensus from the stakeholders was that a programme should be constructed to enhance the employability skills of the students and provide a bridge between education and work.

Addressing the problem

The stakeholders recognised the need for students to acquire key competencies, which they defined as follows: those competencies for the effective participation in evolving patterns of work skills and organisation. They should have the ability to apply knowledge and skills in an integrated way in the work environment.

Key competencies are generic and embrace all types of work rather than being specific to a particular job type. The stakeholders proposed a curriculum design, which can nurture a wide range of skills for the workplace. Key competencies should be compatible with the workplace and also conducive to taking a role in adulthood, and for life-long learning. They were proposed as follows:

- Working in teams and interpersonal skills

- Appropriate work habits

- Creative and innovative skills

- Adaptability skills, and using initiative

- Being responsible

The stakeholders agreed the technical content during the programme should focus on:

- Electrical wiring installations

- Meter installation

- Transformer maintenance

- Air-conditioning systems

- Cable television network systems

Task group needed

The stakeholders charged the school committee to form a task group to formulate a workplace preparation strategy to meet the needs of the search conference and focus group outcomes. The school committee is made up from members of the community, industry representatives, teachers, and parents. It comprises twelve people. The task group examined the key areas to be addressed to formulate a work-based learning programme for school-based preparation and work placement.

They summarised their objectives for work-based learning implementation suitable for employment as follows:

- To provide appropriate theoretical and practical instruction with activities inside and outside school to enhance student competency with employability skills and personal development.

- To provide school-based learning and industry placement experience to maximise student preparation for the workplace.

- To develop student attitudes and mindsets to satisfy the culture of the workplace.

3.6.2 Focus group interviews

Context

As a result of the search conference outcomes the stakeholders sought the views of the students who had agreed to take part in the programme. In December 2002 a focus group interview was held with our first group of 10 students. Focus groups can be used at the preliminary or exploratory stages of a study (Krueger, 1988), during a study, and to evaluate or develop a particular programme of activities (Race et al., 1994), and after a programme has been completed to assess its impact or to generate further avenues of research.

The aim was to discover what participants felt about skills needed for their future career and their feelings about taking part in work-based learning. The interview was conducted in one of our informal conference rooms with casual seating.

The format we devised was for informality with the group in a circle and the moderator was an experienced member of our staff who is adept and skilled in interview techniques. The sequence was video taped, and we chose not to transcribe the process but work from notes. The students had already signed the consent forms to take part in the research.

The group was nervous and shy at the beginning and was unclear as to the precise nature of the gathering. The moderator spent some ten minutes, making the students relax, and arranged them, seated in a circle, which made them, feel comfortable.
He then chatted about general matters, their progress at school, and then general information about their career wishes, and hopes.

Finally, when he was satisfied, that the group were aware of the purpose of the meeting he started asking the specific research questions relating to the focus group needs and what information was sought for the research.

One member of the group took the leading role in the discussion, and two members made a minimal contribution. The session lasted an hour overall. The more the session progressed there was a visible change in the students' composure. The group was less formal and defensive, and some questions produced lively debate and animation.

It should be made clear that the nature of the Thai is reserved, conservative and reluctant to show feelings and emotions. The moderator had to flush out real feelings emotions, and aspirations. The questions posed by the moderator were unstructured and open-ended to allow the respondents to answer from a variety of dimensions (see appendix A).

3.6.3 School-based practical programme

For one month students attended the school according to their regular schedule. The content of the curriculum covered a basic theoretical knowledge. The search conference outcomes required an additional input of specific skills in electrical wiring installation, electrical meter installation, transformer maintenance, air-conditioning systems and cable television network systems. Furthermore, students were encouraged to consciously develop personal theories of learning to the real work setting.

The programme was tailored to accommodate employers' specific needs, and to accomplish these needs, special activities were incorporated such as community service, field trips, and guest speakers, from the community. Workshop sessions were conducted to instruct students on the importance of teamwork, co-operation with others at work, and communication skills.

Industry instructors from participating companies and school staff stressed the importance of personal qualities and basic academic skills and closely co-ordinated their efforts with the students' employment experiences arranged throughout the programme.

Orientation

The programme opened with the school administration staff in attendance and the school principal gave a welcoming address to the first cohort of 10 students. He gave a detailed account and explanation of the month's programme. He explained at length that the course was a special research programme and the cohort had to agree to behave and abide by the programme's direction appropriately.

Students were reminded that the programme was voluntary and they were free to leave it at any time, without prejudice to their status or grades. He stressed the opportunities the course could afford them in contributing to their career aspirations. He welcomed student questions.

Activities

The cohort spent four weeks at the school campus preparing for the work placements. The programme was designed to integrate with, and reflect, what they would experience at the work site. The programme content was intended to be an induction to what they would practice at the work providers

Over the four weeks, data were collected by observation field notes, in-depth individual interviews, and teacher and supervisor assessment. In addition, each student kept a journal to record the experience.

Week 1 - Electrical installation

Each day the cohort experienced a mix of classroom and workshop instruction on electrical wiring applications including cable television systems and circuitry. The focus was to keep the learning as practical as possible.

Community service field-visit

The students spent a day at a local temple giving practical help, repairing, and renewing wiring, and installing electric fans. It was an opportunity to meet the local community and to experience customer communication.

Guest speaker

Representatives from a cable television network supplier gave a talk on aspects of their job, and outlined the skills they seek when recruiting staff.

Week 2 - Electrical meter installation.

The cohort practised the installation of electric meters using a training area on campus. They were split into pairs and encouraged to work together as a unit.

Field trip

On the final day, there was a visit to Banglamung Electrical Authority to be shown a variety of meter applications, and to see the installations in a practical, commercial setting.

Week 3 - Transformer maintenance

The focus was on magnetic fields and magnetic circuits and variations of transformer systems. The students were able to practise maintenance and repair work using a simulated system on-site.

Week 4 - Air-conditioning systems.

The instruction centred on maintenance and repairs and essential servicing such as checking refrigerant levels, thermostat performance, and cleaning filters.

Field trip

There was a visit to Pattaya's largest hotel complex where the cohort was given a comprehensive tour of the electrical network system, and refrigeration plant.

3.6.4 Work placement programme

Orientation

Prior to the students going to the workplace they attended a two day induction seminar at the school to prepare them, and to promote the ethics and culture of the workplace. Representatives from all the work providers were present who gave short introductory presentations on their companies.

Activities

The cohort spent eight weeks at five work site locations, and it was intended that the activities practised at school would be further developed and expanded at the workplace. Data were collected continually over the eight weeks by, observation, field notes, in-depth interviews, and student journals. Teacher and work site supervisor assessments were made on the cohort performance (see appendix C).

At the end of the work placement, a focus group interview was conducted to get student reaction to the experience. The group presented as more relaxed and confident, and self-assured.

Week 1

The cohort spent a week at Banglamung Electric Authority, practising electrical wiring applications, maintenance, and replacing faulty equipment. They were divided into pairs and dispatched to customer locations. The focus was on building teamwork skills and developing customer liaison skills.

Weeks 2, 3 & 4

The placement was at a building contractor, in the process of installing a new lighting and circuitry system at an apartment block. The experience provided the students with valuable 'hands-on' time and further teamwork building skills. They were also able to demonstrate their proficiency and aptitude to work with limited supervision.

Weeks 5 & 6

Two weeks were spent at a cable television network provider. The cohort practised cable laying from outside stanchions and making the link and connection to the customer's premises. The placement exposed the students to diverse skill areas not only in cable television systems but also learning to adapt to a new environment. They were required to demonstrate teamwork skills, an aptitude for learning new technology and effective customer communication.

Week 7

The cohort spent the week at a company supplying new air-conditioning systems

and providing a maintenance and repair service. They were able to experience technology and work skills, which are taught at only an elementary level at school and learn the technology in greater detail at a variety of locations.

Week 8

The final week of the programme was with another air-conditioning systems supplier. They were exposed to technology and skill standards that are not covered at school.

Focus group interview

At the conclusion of the practical activities in the work-based learning programme the cohort was interviewed again to get their views of the experience, and to see what aspects of the programme need to be changed before implementing cycle 2. The students presented as more confident, self-assured, and had developed an open mind as a result of the programme. They showed enthusiasm to put forward their ideas and were keen to join in the discussion. The moderator probed to discover the issues, which concerned the students regarding the programme implementation, and how the programme can be improved.

Reflection

Implementation was a crucial undertaking in the action research gestation. Students were involved at all stages and their opinions and concerns recorded via triangulated data. The process of reflecting and considering how best to improve activities and their future development was crucial. The school committee analysed the outcomes as they occurred, and reflection was a continuous process. The issues of concern to be debated prior to cycle 2 were:

- Incompatible programme content in certain areas.

- Insufficient instruction in student preparation regarding crucial work environment regulations.

- Insufficient understanding of the students' characteristics and nature by the work site.

- Inadequate teaching standards to transfer information.

3.7 CYCLE 2

3.7.1 Search conference

The stakeholders met again to reflect upon the outcomes from the first cohort of students, and to consider what changes need to be implemented to improve the programme at school and at the work site for the second cohort's experience.

Addressing the problem

Technical content

The topics covered at school and at the work site should be more carefully integrated and the subject matter covered, allow time for more in-depth instruction and learning to be achieved. Because of the practical problems encountered in the first cycle with meters and transformers it was agreed not to include these subjects in cycle 2 but still include them in the normal curriculum. The next cycle of the programme concentrated on three areas of instruction:

- Air-conditioning and refrigeration systems

- Television cabling networks

- Electrical wiring installation and circuitry systems

Work site codes of conduct and health and safety regulations should be more comprehensively communicated together with basic work skill standards.

Teaching and communication

Prior to the school-based programme an induction seminar for the school staff and work providers was held on campus to agree the subjects taught and co-ordinate the school-based and work-based components of the programme. It was important that the teaching standards achieved an appropriate uniformity at school and the work site. The instructors at the work site locations needed to be familiar with the nature of the students and adjust their teaching styles to accommodate student understanding, to enable a good rapport and effective instruction.

Student discipline

To rectify the problems of time-keeping, behaviour at work, and general conduct, it was agreed by the stakeholders to increase the teaching supervision and instruction at school and the work site, to improve the student awareness of working standards. Particular attention was to be given to all aspects of health and safety procedures.

The cohort in cycle two was given increased mentoring facilities at school and on location at the work site. The mentors helped as facilitators with the work placements, to assist the instructors as appropriate. It was hoped the increased presence of mentors would overcome some of the problems experienced by the cohort in cycle 1.

3.7.2 Focus group interview

In June, the second cohort of 10 students were interviewed to get their views and expectations of the forthcoming work-based learning programme at school and work site locations. The format, as for the first cohort was for informality, and the moderator seated the students on casual seating in a circle. The sequence was video

taped and we worked from notes to interpret the data. The session lasted three quarters of an hour.

Task group

The school committee designed an appropriate action plan to meet the stakeholders' directions and student views expressed at the focus group. In addition a training induction seminar was held over three days on campus as a prelude to the school-based preparation programme. The seminar was designed to prepare the cohort to acquire personal skills for working life, and develop clear expectations for their futures and build confidence for the work-based learning programme. From the analysis of the reflective process revisions were made to the programme in the area of the subject content. School-based preparation and work placement details were developed to solve the problems encountered in cycle 1.

3.7.3 Induction and orientation programme

A three-day familiarisation and induction seminar was held on campus before the school-based one-month preparation programme. One day was set aside for teaching staff and work site instructors and two days was devoted to student induction. This was arranged to comply with the stakeholders' view that a more comprehensive introductory initiation was necessary to prepare the cohort with the necessary personal skills and expectations before the three-month practical experience. Moreover, the school teaching staff and work providers needed to agree the teaching and technical content of the school-based and work placement segments of the programme.

The school principal gave a short introductory address to outline the purpose of the seminar and the rationale behind it. He then introduced the seminar leader and his team who were brought in by the school as outside consultants specialising in motivational techniques and running courses in schools and companies.

Day 1

This was a day designated to review the problems arising from cycle 1, and the way to improve the instruction methods and design more appropriate activities.

Teaching staff from Aksorn School of Technology Pattaya, and work providers assembled to review and construct the syllabus for the school-based and work site based activities. It was agreed to reduce the range of subjects taught in accord with the stakeholders' decree.

It was also agreed to make the instruction of health and safety and codes of conduct at work a major priority in cycle 2 to improve the deficiencies experienced in cycle 1.

Day 2

The student induction began with various 'ice-breaking' activities to put the cohort at ease, and create a relaxed atmosphere. The intention was to create an ambience, which would elicit confidence and commitment from the cohort. All the activities were designed to keep the students engaged and motivated. The principal focus was on teamwork and working in pairs. We wanted to ensure above all the experience was fun and varied to maintain the cohort interest.

Day 3

The session in the morning was designed to promote communication skills, and build confidence levels in individual performances. For example, in one activity each student had to pick an article out of a box and then give a short two-minute talk describing the object and its uses. The afternoon session was devoted to a variety of games engaging manual dexterity and lateral thinking skills.

Finally, each work provider's representative spoke about their own businesses, with special emphasis on the skills they sought and the safety practices they demanded.

Summary

The extended induction programme for teaching staff and work providers was planned to provide more cohesive co-operation between the school and work site and improve learning and training facilities. The students demonstrated positive attitudes and application over the two days. The variety of activities kept their motivation and commitment high.

As a precursor to the work-based experience it provided the appropriate platform and environment for their future experience. MacAllum et al (2002) found that orientation and induction programmes are important for giving students the appropriate information and for preparing them for their future work-based learning participation. The *Lansing Area Manufacturer's Project (LAMP)* in the USA found that "The orientation begins to build student buy-in and commitment'" and "Orientation is essential to initiating the team-building process" (MacAllum et al., 2002).

3.7.4 School-based practical programme

The cohort spent four weeks in a designated workshop in preparation for the work placements. The strategy was to make the workshop experience emulate the work-place as closely as possible. Particular focus was given to the conduct and health and safety at work.

To improve the quality of learning the teaching presence was increased and the number of subjects taught reduced to give the cohort more in-depth instruction and time to practise.

The schedule was as follows:

Week 1

The students practised electrical wiring installations and various circuitry applications. They were able to experience different scenarios in wiring techniques with a model house, which had been constructed in the workshop.

Weeks 2 & 3

Two weeks were devoted to air-conditioning and refrigeration systems. The cohort was able to practise with the latest equipment available and use a complete range of components.

Week 4

The cohort had a three-day induction period with a cable television company.
One day was spent at school in the workshop and two days were on site at customer locations for on-the-job training.

Field Trip

A visit to a major hotel complex was arranged for the students to experience the management and maintenance of the Electrical Department. Students were able to learn how what was learned at school in theoretical terms translated into a practical design on a large scale.

Community service

A week was spent at local government schools where the cohort installed wiring for telephone and public address systems and conducted various repair and maintenance tasks under the supervision of school staff.

3.7.5 Work placement programme

Orientation and induction

As a result of the outcomes from the stakeholders' search conference the work providers were reduced to two and the time spent with each work provider increased to give the students more in-depth training and practise. The mentoring and teaching presence at each location was increased to give the cohort and the work provider extra support and more effective learning opportunities.

A further induction programme was held on campus over three days to prepare the students for the work placement experience, and to prepare the work providers' instructors and school mentors for the curriculum content and method of instruction.

Special focus was given to the codes of conduct in the work culture and to the health and safety regulations applicable to each work location.

Activities

Weeks 1,2,3 & 4

The cohort was placed at various customer locations at air-conditioning, and refrigeration systems suppliers. They were given a wide range of tasks to perform. The experience ranged from wiring applications to installing new refrigeration and air-conditioning systems. The maintenance and repair of refrigeration and air-conditioning units was also included.

Weeks 5,6,7& 8

Four weeks were spent at a cable television network provider. The practical activities ranged from laying new cable to new customer locations and connecting the customer

to the network, to carrying out repair work to customer installations where the signal was weak, and required new cable connections.

Data collection and analysis

Throughout the programme data were collected and evaluated. Once the practical activities had concluded, a focus group was conducted to find out the cohort reactions and feelings about the three-month experience. The data collected were especially important to see if there had been any significant change in student views as a result of the programme alterations in cycle 2.

Each student individually kept a journal to record their feelings and assessment of their progress.

Interviews of approximately half an hour with each student were recorded by tape to review their perceptions of the programme and their personal achievements.

An assessment of the student performance was made by teachers during the school-based programme, and at the work placements, by the work providers' staff.

A descriptive process of gathering data from observation in the field was continuous throughout the programme.

3.7.6 Summary

The engagement in, and nature of action research makes the participants more aware of their own practice and the practice of the community in which they conduct their lives.

It has made me examine more rigorously the planning, execution, and effect of each step as the cycles evolved and changed. The reflective process demands very careful consideration of the outcomes presented to ensure efficacy and authenticity. As a

body, the school has had to examine its practices and re-evaluate its mores and teaching methods.

The action research process is a discipline that acts as a catharsis and stimulant for the entire institution. The experience for all the stakeholders has made them examine minutely each step in the cycle.

For the cohort, the experience has helped them focus on their own destiny and career paths. They have been asked to reflect on what they want from the school, the work-place and the wider community. These thought processes have given them a foundation and model for further personal development.

CHAPTER 4

SCHOOL-BASED PRACTICAL PROGRAMME FOR GROUP 1

4.1 Student views of work-based learning prior to practical activities

The focus group interviews revealed many interesting and diverse outcomes. Before beginning the work-based learning programme the group articulated their reservations about the current system of school-based learning and expressed positive anticipation of the proposed school-based preparation and work placement programme.

4.1.1 Reservations about school-based training.

a. Lack of confidence to work in the real work situation.

Students expressed concern about their weakness in the work environment. The major issue was lack of 'hands-on' experience, which led to a lack of confidence in executing basic skills in a work site setting. This proved to be the common thread running through the entire interview session. The group agreed that shortage of practice in the real work situation bred uncertainly about their abilities and the confidence to do the job. Many felt that they needed to acquire the appropriate attributes for the world of work. Some commented that contextual skills are essential to prepare for working life which can develop self-confidence directly. It may give them the experience of using work to foster their own learning.

> Learning in the real work environment will give me experience and understanding of how it works. I believe that my confidence will grow. (S2,G1)*

* The allocation of source codes has been used as follows:
S denotes the individual students numbered 1-10
G denotes the group to which the students belong, either 1, or 2

b. Limitations of classroom learning

The group commented that the current Thai curriculum was too theory-oriented, too teacher-led, and this produced a passive audience of students who were lectured and were not sufficiently pro-active in their studies. They suggested that the school curriculum should be compatible with the work site requirement. All respondents wanted to increase their practical knowledge through practical experience and reduce the classroom study time.

They wanted the proportion of time spent in the workplace to be increased and the time spent at school to be reduced. Some students suggested that they need more practical 'hands-on' experience time and believe that it will enhance their competencies. Some respondents had gained knowledge, they claimed, outside school via media and social contacts.

Respondents put forward the proposition that:

> Classroom learning can teach me the principle but can not develop practical know-how. Workplace involvement gives me a more realistic understanding in the job, which cannot be replicated in the school environment. (S7, G1)

> I learn many theories, but I don't know how to put them into practice. What I see happening in the outside world in technological innovation has no bearing on what I learn at school. I want a reduction in school time learning because I believe I can learn quicker by practical example at the workplace. (S8, S9, G1)

c. School-based learning needs to be up to date.

Students believed that the content of vocational education should better respond to the needs of a changing economy with an appropriate balance for the labour market requirement. They wanted a greater link between school and the workplace activities.

Moreover, all respondents recognised the need to keep up with the new techniques coming to the workplace. The group pointed out that the school could not provide the up-to-date equipment for day-to-day practice. This led to a shortage in employability skills, and led to diffidence and doubts of their own abilities. This in turn, a number of respondents stated, led to lack of self-worth and self-esteem.

> I want the school-based experience to keep abreast of the workplace need. (S5, S6, S10, G1)

> I want a basic grounding in core electrical skills such as meter maintenance, and air-conditioning systems. These skills are very important, and if I have them I can use them to develop my further career. (S2, G1)

> I need to know about air-conditioning systems as there are many job opportunities in that area. (S1, G1)

> I want the school to develop more realistic classroom learning to enhance my practical knowledge. (S3, G1)

4.1.2. Positive expectations of practical work

a. Work experience as a motivator.

The group agreed that the live, and real experience of the work environment would be a major stimulant and motivator. This environment can produce real experiences which are contextual, in a dynamic situation, which can inspire and encourage all participants.

The group thought that their enthusiasm would increase. One respondent made a telling comment:

> Work experience will give me a wider vision for the future. (S3, G1)

Another comment in the same vein was:

> Work placement will give me a realistic understanding of the nature of work. (S5, G1)

b. Work experience will develop life-skills

The group members expressed a wish to improve their life-skills, for example their relationships working with the other people, communications, social skills, and problem-solving. Students see these skills as necessary for their further careers. They believe that changing patterns of technology and intensified global competition, require higher level skills. Some of the representative comments were:

> I would like school to help me prepare for good social skills such as communication to staff, supervisors and customers. (S2, G1)

> When I am at the work site and experience a problem, I think I can't handle it so this is a very important life-skill to manage. (S4, G1)

> We need to develop skills in dealing with other employees and how to conduct ourselves at the work site. (S7, G1)

> I believe practical work can help me to have a better understanding of workplace culture and how to relate to other workers. (S9, G1)

c. Workplace practice and job prospects.

The group agreed that the workplace was the most effective learning forum for workplace skills, as they learned to react and solve problems as they developed.

They proposed, that given the right incentives, a work placement programme could improve their skills and job prospects. All respondents saw it as a major opportunity

to secure a well-paid job, and to be career progressive. It was an opportunity to gain real 'hands-on' experience at the work site. Furthermore, it would give them a significant advantage in the job market at the interview stage. Respondents as a body thought it would give them increased confidence and self-esteem knowing they had the capabilities required by the employer. It would also reinforce and substantiate their self-belief and increase morale.

> It will help me to have a clearer idea of my own worth and value. (S8, G1)

> It will give me the chance to experience a variety of job situations. (S9, G1)

4.1.3 Reflection

The session showed that students were aware of deficiencies in our current system of preparing them for the working community. It showed that the programme must provide a structure and support system which builds confidence, and promotes self-esteem among students. The need for practical work placement opportunities is paramount, and to change the emphasis on classroom-time to work site time is apparent, but as Stern's findings show, what is learned in classrooms does not always transfer to actual work environments (Stern, 1991). MacAllum, McDonald and Johnston (2002) endorse this proposition and found the skills of teamwork, problem-solving, and communication are not always taught directly in schools. However, Misko's (1988) study showed that students in work placement indicated that they benefited by experience in, and knowledge gained of, particular trades and professions. She reports that, as a result of the work placement, they better understood the nature of the occupation.

The group agreed they needed a development programme, which would enhance school-based learning and link it to the workplace. MacAllum, McDonald and Johnston (2002) suggest work-based learning can link academic knowledge to practice, and many commentators argue that students in school-to-work programmes can benefit academically, because the experience makes them understand the

connection with the classroom (Hughes, Bailey and Mechur 2001). We have to think about what content we teach, to fit into the real world, not just symbolism. Above all the programme should focus on the attributes, and skills needed for the job market.

The group was particularly anxious to develop and improve their generic employability skills, which are deemed crucial for career prospects (McLeish, 2002). I am aware that what is proposed must take account of a quantum shift in attitudes and mindset from us all, stakeholders, and students, if we are to reach a successful conclusion. It means a fundamental change of direction from teacher-led instruction, to student inspired instruction. The programme should embrace all aspects of adapting to diverse working environments. I recognised a major need for teamwork and communication exercises.

I noticed that the focus group would only talk individually and rarely supported each other, or speak as a group. I believe that there are many inconsistencies between school, and the real world. School advocates individual performance, whereas in the real world, it is usually an emphasised socially shared performance. I think working in teams or groups at the work site is essential practice.

4.2 Work-based learning programme on campus (school-based preparation)

4.2.1 Orientation

A week before commencement, a brief induction was held to introduce the programme to the students. One month would be spent at the school. Classroom instruction would take place with a variety of work-based learning activities, in and outside school. Simulations of work environment procedures would be conducted during the month.

4.2.1.1 Student concerns

a. Changing status

The first day showed mixed emotions among the group. The students were diffident and uncertain. They were unclear as to the outcomes and implications of their participation in the programme. Many students wanted to know what their status would be, and how they should act. For this programme they were told to follow the school procedures which had been adapted from work site regulations, and were asked to change their status to emulate the workplace. They expressed concern about an increased work-load and responsibilities, and were apprehensive about their newly perceived status. Another student concern was attendance and punctuality in class, and whether the programme contributed to their overall school grades.

They were informed that the programme was outside the school rating system, and would not affect their overall grades in anyway.

b. Rules and regulations

Students had many concerns regarding the programme administration, and required clarification on various points. The principal told them the school would provide a programme certificate upon completion of the course. They were informed the school could not guarantee an employment offer, but the principal stressed that the course certificate would be a strong incentive for a future employer to recruit them. Students coming late to class were told, provided they inform the course co-ordinator in writing, they will not be penalised. Two students asked about the work placement schedule (S1, S5, G1), and were advised that the individual industry partners would provide the schedule once the students had joined their detailed site.

Some students were concerned that they might perform a task incorrectly at the work site and asked if this would affect their overall assessment. They were told that they would have a mentor and instructor to assist and help, and there would be many

opportunities to practise and perfect the tasks, and they would not be penalised for trying the best they can.

The principal explained at length the importance of safety at work and the necessity of students to pay very careful attention to the rules and regulations for safety in the practical activities. One of the group asked:

> Am I covered with insurance for accidents? (S2, G1)

It was explained that the programme was covered by the school's accident insurance, whether at school or the work site. The induction session ended with a short address by the School Director. He told the students to take full advantage of the course opportunities, to work hard and wished them luck in their careers. The group appeared more relaxed now and much of their apprehension had diminished once the programme had been fully explained to them.

Week 1

a. Classroom instruction - Electrical installation

Each day three hours of theoretical knowledge of electrical installation and cable laying for television was taught, using an electric circuit training board. This is part of their basic training and is a core subject and part of the normal schedule. They appeared relaxed and were familiar with the subject matter. The teacher wanted class interaction, and deliberately chose students to demonstrate individually in front of the class various procedures. A lecture style format was carefully avoided. The students appeared attentive and involved in the lessons.

A guest speaker from Sophon Cable Television Company gave a talk on the technical aspects of cable installation to customers. The session proved to be very interesting for the students, who asked a variety of questions about the service and job requirements, and conditions of service.

b. Work practice instruction

The first day the instructor demonstrated the practical use of the equipment. Students were taught practical functions to link with the theory they had learned in class. They were asked to complete various manual tasks for electrical wiring installations, and to recommend appropriate capacities to different applications. The whole emphasis of the workshop was to familiarise the students with practical applications, the theory of which had been pre-taught in the morning. It was apparent that the first day was of less interest to the cohort, as they were familiar with the process. However, when a 'dummy' circuit board was used, so that students could practise individually, their skill at wiring the installation, and their interest and attention increased. They were given a graphic model handout of the board to practise on.

Some students assimilated the graphic handout easily and were able to start the board wiring without supervision but others found difficulty with the application and needed guidance from the mentor or instructor. The instructor continually inspected their progress and was able to give advice and guidance when needed. Their application was good and clearly the workshop activity held their attention. There was little idle chatter, and the atmosphere was studious, and attentive.

The school had prepared a small practical working site, where students were able to install wiring systems. On the first day, I was aware that the instructor had to be in attendance continuously to prevent the students from idling and not applying themselves to the task. The cohort concentration levels fluctuated markedly depending on the task. The instructor had to encourage them constantly. Two of the cohort took the leading roles and were the motivators to urge the others to get on with the job. The next day, I observed that their work-rate improved and their application to the task was better.

c. Community service field visit

The group was given the opportunity to put what they had learned in school into practice by visiting the local temple. They were asked to renew the wiring systems in the temple and install the lighting and electric fans. They were excited and joking together at first, but they were apprehensive and unsure when faced with the job they had to do. They needed the assistance and guidance from the school instructor to give them the steps and plan for them to follow. One pair was detailed to install an overhead fan, which they completed successfully. The pride and satisfaction once the job had been completed was apparent. My main observation was the switch in mood from learning at the school site to the temple where they were confronted with the reality of the task to hand. They were also dealing with customers and members of the public for the first time. Many were ill at ease and lacked communication skills to deal with customers.

4.2.2 Week 2

a. Classroom instruction - Electrical meter installation

The week focused on electrical meter installation. The instructor taught the basic theory and the components, and the characteristics and type of pole. The instructor used a wooden training board to which the meter was affixed. The exercise was designed to teach the dimensions of the meter. Furthermore they learned the symbols and code reading systems for meters. The instructor gave particular emphasis to the art of climbing the pole. The students were attentive and interacted with the instructor, and asked many questions about the workings of the meter and the types of meter in operation.

b. Work practice instruction

On the first day the students had a demonstration of the equipment in a real setting practising with a pole and meter and the attendant components. Other days were

devoted to the scaling of the pole and the techniques of using safety harnesses and clamps and spiked footwear. The students were asked to practise the installation of the meter. They had to work as a team and the one on the ground attended to the meter, whilst his partner connected the mains supply up the pole.

They were instructed in pairs, and had to work together as a unit. They were clearly enjoying the work, and it was an exciting experience for them. One pair had to change places with one another, for fear of heights.

c. Field trip

On the last day the group visited the Banglamung Electrical Authority to be shown the meter systems, and their application in the real setting. The session ended with a speaker from the company giving a talk about career opportunities at his company. He covered the whole meter installation procedure and a demonstration of a meter installation on site. Moreover, the students were able to mix with the employees and took part in a job-shadowing exercise. They were able to observe various job tasks and to get a feel for the work and environment.

4.2.3 Week 3

a. Classroom instruction -Transformer maintenance

Transformer technology is complex and the instructor reported a high level of absenteeism. Classroom instruction can only show diagrammatic models in a text book. The focus was on magnetic fields and magnetic circuits and variations of transformer systems. The instructor concentrated on the maintenance aspects. At first the students were enthusiastic about the lesson and appeared attentive. After a short time only two of the group showed any interest because of the complexity of the technology. Although the instructor gave a patient and careful explanation, the students were quiet and unresponsive. Questions from the students were limited. There was little interaction and the class was mostly passive, listening to the

instructor. However, the instructor always had to remind the students of the technical aspects of the equipment.

b. Practical instruction

The school has a practise ground with a transformer affixed to a pole. This is a simulation, as it is not linked and connected to the electricity mains supply for safety reasons. The school has problems giving a practical demonstration with real transformers, because of the expense and limited facilities. The students remained in a group. Students were able to practise scaling the pole and can learn the strict safety codes when dealing with transformers. The group was uncertain at first and slightly daunted at the technology. Some had a problem with heights, but nevertheless paid careful attention. They were, as the session progressed, more enthusiastic and excited at the new experience.

4.2.4 Week 4

a. Classroom instruction - Air-conditioning systems.

Students learned the basic foundations in air-conditioning which involves many theories. The instructor focused on the key issues, which apply to practical applications. The quality and condition of the coolant was taught as an important ingredient in air-conditioning systems. The components of the air-conditioning systems were also detailed: air motor compressors, condensers, evaporators, and drier filters. The students appeared interested and involved and were familiar with the technology. They paid attention and took notes, and asked detailed questions. The session revolved around basic servicing, and attending to routine checks such as thermostat performance and cleaning filters.

b. Practical instruction

The practical instruction was spent in the workshop where an array of air-conditioning units were on view and the students had to examine and test them and learn the components that make up an air-conditioning system. During the remaining two days the group joined the school service department for on-the-job training by checking all the air-conditioning units throughout the school. They were accompanied by their instructor, and other staff who were on hand to give advice and assistance.

The students took part with enthusiasm and were very cooperative and pleased to be engaged in a real job. They worked hard and timekeeping and attendance was extremely good. There was little chatter and they concentrated on the work to be done. They worked in teams and learned to act as a unit, by consulting and helping each other. When they had a major problem they asked their instructor. My main observation was their positive reaction to meet the challenge and having a pride in their work responsibilities.

c. Field trip

There was a visit to Pattaya's largest 5 star hotel leisure complex, where the group was shown around the electrical control system. The technical manager gave a comprehensive conducted tour of the plant and demonstrated some of the applications such as the electrical network system, heating system, and maintenance code. The group interacted well with their guide and were clearly interested and attentive to the networks. The students obviously relished getting an insight into a modern working example of the various electrical disciplines. As one of the group remarked:

> Getting out of school into the real world is a real motivator. There is too much classroom activity which is repetitive and boring. (S7, G1)

The tour ended with a question and answer session at which the group communicated well with the hotel representative, and asked many pertinent and relevant questions.

> I can understand how things work when I see them in a practical setting. (S5, G1)

4.3 Student assessment of the practical experience

Each member of the cohort kept a journal in which they recorded their feelings, and achievement and failings during the school-based one month preparation programme. In addition a taped interview was conducted with individual students.

4.3.1 Student development

Students reported that the work-based learning programme on campus had provided many learning opportunities to develop all round work competencies. This programme had supported the normal classroom instruction by providing a practical contextual perspective.

Each member of the cohort interviewed said that the integration of classroom and workshop instruction had made the connection between school and work more meaningful and relevant. It had made them think more realistically about the workplace and their career paths. One student commented:

> The daily concentration on one topic of theory and practice made me understand the whole concept better. (S10, G1)

The cohort claimed the practical experience helped to reinforce and make meaningful the classroom instruction. Moreover, the practical instruction has produced a better understanding of employability skills and has given the cohort a more balanced view of work-based skills required.

> I understood the classroom lessons better when linked to practical activities, because it puts theory into practice in a realistic way. (S6, G1)

The group generally felt their belief in their own abilities had progressed as the programme developed. They were able to test their competence with each task they performed. As one remarked:

> I have learned many different job tasks and feel confident I can perform in the workplace. (S2, G1)

Three of the group said they learned to plan ahead and prepare for the tasks posed, which had helped their efficiency.

> Thinking ahead and planning the assignments has helped us come up with a solution to the problem. (S4, S6, S7, G1)

The students felt the programme had encouraged a sense of achievement and pride in their work.

> I have better self-worth and feel proud when I know I have helped my school and my community. (S3, G1)

Many of the cohort stated that the school-based programme had helped in some measure to allay the anxieties expressed at the Focus Group 1 meeting with regard to confidence in a real work environment. Attitudes and motivation were seen to have changed and positively improved in comparison to the December Focus Group reservations voiced at that time.

4.3.2 Responsibility

The group in general felt that the course had induced better timekeeping habits, and a greater bond of collective responsibility with their colleagues. Some said before

coming on the course that timekeeping was not important to them. Taking responsibility for their actions was a theme echoed by many in the group and as one agreed:

> I don't come late because I don't want to let the others down. (S8, G1)

4.3.3 Teamwork

Students reported the programme had given them the opportunity to work in pairs and foster teamwork. They believed that group interaction skills were a very important area of development in vocational education. This category included such skills as working well with colleagues and supervisors and working as a team member and respecting other opinions.

The teamwork assignments had engendered a more responsible attitude and a student recalled:

> Working in teams has helped me develop my performance, because my team-mate and I are responsible to each other. (S9, G1)

4.3.4 Communication

Many of the group noted that their listening skills had improved because what they had learned in the classroom session had to be implemented in practice in the afternoon. They had to pay careful attention to the instruction, so that they could accomplish the practical implementation.

> This programme has made me develop many communication skills. I have to listen, ask questions and use writing skills as well as communicate with others around me. (S4, G1)

For many of the cohort customer contact was a new experience for them and a valuable time was spent during community service meeting and responding to customer needs.

> The community service gave me good experience by meeting customers, and learning how to deal with them. (S3, G1)

4.3.5 Reservations

Some students complained the instructors did not allow sufficient time for them to complete the practical tasks. They thought the schedule was too concentrated. One reported:

> I was frustrated with the time constraints, as I wanted to finish the job. (S8, G1)

Students said the school does not have enough equipment for practical learning. In particular they cited air-conditioning systems, when they only learn about maintenance, and can never learn about installation procedures. As one student stated:

> I want more experience in air-conditioning installation, as I want to make it my future career. (S9, G1)

This reinforces and restates the Focus Group 1 outcome in December. Two of the cohort commented they only learn the basics of transformer technology. (S7, S9, G1)

There is no practical in-depth instruction at school. The technology today is increasingly more complex and the school should provide up-to-date practical experience. This view was expressed at the Focus Group1 research meeting.

When they were on community service they found their knowledge of some of the appliances limited. They suggested more comprehensive training prior to going out. Some students found the tasks in the practical sessions too repetitive and wanted more job variation. One student said:

> I got bored doing the same job all day fixing a cable to a wall. (S6, G1)

Some recommended the school programme be expanded and commented:

> I think this programme will benefit the junior students next semester, and the school should continue it and expand it. (S2, G1)

The cohort recommended that they would like the school to provide more workplace learning activities, such as field trips in different areas of work. Some of the cohort remarked:

> It is relevant and interesting and not boring like only learning in the classroom. (S1, S4, S6, G1)

Students felt that there should be more co-operation between the school and the workplace to provide a greater range of facilities and more opportunities for on-site visits and tours.

A day-release scheme was also proposed where one day a week they would be on work placement. (S7, S9, G1)

4.4 Reflection

The four-week preparation period on campus has been experimental and innovative. We knew from the focus group outcome that confidence and self-esteem were the primary issues, along with attitudes and perceptions. To promote work-based learning, the programme design focused on activities to integrate the classroom and

practical workshop activities. On the evidence presented we need to concentrate and effect changes in the following areas:

4.4.1 Classroom and workshop instruction

The cohort has responded well and with increased motivation to workshop instruction. We need to think about organising the in-school component of the programme around a workshop format, which will necessitate adjusting the curriculum accordingly. The course content should have more practical work-based learning activities.

Our experience found that the practical workshop activities were well received and this view is supported by the *Investing In Youth Nova Scotia Project,* (Thiessen and Looker,1998), where they found workshops were especially well received because they did not resemble regular classes. The more that classes were replaced by workshops the better the participants' reception of the in-school component.

4.4.2 Equipment and technology

To keep abreast of developments, where practical we need to give the cohort up-to-date familiarisation with the appropriate equipment and technology. This will mean in some cases taking the students off campus to industry partner locations.

4.4.3 Work-based learning activities

Further activities, such as community service, job-shadowing, and field trips to industry partners can be developed, to give the cohort added experience and knowledge. Guest speaker occasions and on-the-job training experiences should be increased. This can be a vehicle to help support the aims of personal development. We want to include activities to expose the cohort to a wider range of situations to develop transferable skills, attitudes, and behaviours.

4.4.4 School/work provider co-operation

We need more co-operation from our industry partners to help us with the programme implementation. We have an agreement with the industry partners, but in terms of operational support we have had little assistance. More in-put and collective collaboration is needed to work together to assess and preserve the development of the programme.

We must build-upon existing, and develop new relationships with industry partners. The nucleus of work providers willing to help the school with work placement is still limited. More human resources are needed along with the range of work placement partners.

Skilled workshop instructors from industry should be cultivated to improve the quality of the programme. The *Innovative Pathways Report* in New Zealand (Boyd, McDowell and Cooper, 2002) concluded "it could be easier to develop relationships with providers or employers who already had a system set up to provide training programmes for other groups or for their own employees".

CHAPTER 5

WORK PLACEMENT PROGRAMME ARRANGEMENTS AND FORMAT FOR GROUP 1

5.1 Context

In accord with the stakeholder objectives, the work placement portion of the overall scheme was designed to integrate, and correlate with the school preparation, in theme and context, so that, what was learned both theoretically, and practically at school, would follow through to the work site experience. That experience above all should reflect and be relevant to the school preparation, and to the stakeholders' aims.

The two work placement providers were Banglamung Electric Authority and Sophon Cable Television Company. Banglamung Electric Authority provides a power supply service to consumers and contractors throughout the district. Our students were seconded to the installation and maintenance department. The principal areas of operation are the installation and maintenance of meters, and transformers, diverse electrical component installations and air-conditioning systems.

Two contractors of Banglamung Electric Authority were also partners in the scheme, and provided work placement for the cohort. They were A and Air Service, and Sahamit Air Cooling Service. Both companies specialise in maintenance, repair, and new installations of air-conditioning systems.

Sophon Cable Television Company is a cable television network supplier in the district and specialises in cable laying to companies and private housing.

The eight weeks programme was devised and designed to meet both employers' needs and school imperatives in accord with the search conference outcomes and objectives. The cohort moved from company to company during their secondment.

A programme co-ordinator from the school staff was put in day-to-day charge of the execution of the scheme, and to liaise with the industry partners. An instructor from the school was on the work site location frequently to counsel the cohort. The industry partners supplied programme supervisors to direct the students' work site duties and monitor their progress, and make the individual assessments.

5.2 Orientation and induction

Prior to the work placement secondments at the providers' locations a two-day orientation and introduction to the workplace was held on campus at Aksorn School of Technology Pattaya. This workshop and seminar was attended by all stakeholders, the industry partners, the school staff, outside specialists and the student cohort.

The strategy was to revise what had been covered in the school-based preparation programme and to link thematically and practically those topics learned then, to what they would experience on the work placement. The integration of all elements of school and work site programmes should have relevance and be complementary.

5.2.1 Day 1

The focus and aim of the day was a briefing and familiarisation seminar for the work placement providers' trainers and the school staff. It was also an opportunity for the school staff and their industry counterparts to exchange ideas and consider problem areas the trainers might encounter at the work site.

The school programme co-ordinator chaired the event. A short explanation of the school ethos and teaching methods was given and the standard and abilities of the cohort in the technical applications to be practised at the work site was outlined.

He then introduced an outside specialist consultant who presented a framework of the progressive stages of the tasks to be implemented:

1. Analytical skill and knowledge the students need to acquire.
2. Teaching strategy to choose the most appropriate teaching method.
3. Work practices (the trainer presented a model of regulations and work standards).

These principles were then debated, and a lively brainstorming session ensued. This was followed by a workshop practice where each of the industry representatives gave a presentation on aspects of their technical field to the other delegates. The intention was to explore suitable and appropriate instruction formats to get a consensus of opinion and feedback from their peers and teaching staff. Each presentation was analysed and useful constructive views were expressed.

5.2.2 Day 2

The focus for the second day was to initiate and introduce the cohort to the work placement programme. Above all the aim of the session was to get the student mindset compliant with new ideas and situations and receptive to innovation and change.

In the morning the format devised was to have initial 'ice-breaking' exercises for the cohort with the school's programme co-ordinator. Each of the team gave a short oral introductory profile of themselves. Then followed a variety of team building games in pairs, which involved role-playing and problem-solving.

The afternoon session involved all the industry representatives, and school staff, and the cohort team. The school programme co-ordinator chaired the session and made the introductions, welcoming the industry representatives and the cohort.

A review of what had been accomplished during the school-based part of the programme, was given and then the plan for the forthcoming work placement

secondments was outlined. Special attention was given to the rules, discipline, and code of conduct at the workplace.

The day continued with each of the work providers giving a review of their own individual programme details. They talked briefly about their area of expertise and summarised the job tasks and specifications the students would undertake. Finally an 'open forum' question and answer session enabled students, teachers and the instructing staff to air any unresolved areas of concern.

5.2.3 Observation

The co-operation and enthusiasm of all parties was encouraging. The school staff and work providers took part willingly and with commitment in all the orientation activities.

Work providers were aware that that they needed to improve their teaching skills, and were open-minded, and enthusiastic to share ideas and learn more about the problems and plans the school has for improving student skills for the work site. The orientation produced some constructive ideas to help the integration of the school preparation to the work site.

The rapport and relationships between the school staff and the industry partners was significant. They interacted well and appeared motivated to co-operate with the programme's aims.

The student participation and reaction was circumspect. They were a little daunted and apprehensive at first, and unsure of their role in the proceedings.

The programme co-ordinator had to get their interest and commitment, by making each student introduce himself to the assembly and give his reasons for joining the programme. The opening session team activities had been a sensible strategy to get them involved and active.

> The role-playing was fun and my partner and I worked well together. I was relaxed and felt comfortable. (S2, G1)

As the session progressed their confidence and attitude altered, and they committed themselves with enthusiasm and motivation.

> It helped me and my mate bond well together. (S9, G1)

> It was useful preparation to get you in the right frame of mind. (S10, G1)

5.3 The placement experience

5.3.1 Week 1

Banglamung Electric Authority

The cohort spent their first week with this company at the installation and maintenance department. The original plan was for the cohort to have in-depth instruction on meter installation and transformer maintenance to follow on from the school-based instruction.

Unfortunately due to customer demand and job re-scheduling the meter and transformer practical experience had to be aborted. The revised schedule focused on electrical wiring applications, and replacing faulty equipment. This was nevertheless an important practical area for the students, with varied locations and opportunities to see different technical applications. They were split into groups and were dispatched with a supervisor to the customer locations.

Personal development

The greater part of the week was spent in the real work site situation and there was considerable customer contact. It presented the cohort with valuable exposure and opportunities to observe and learn customer handling and liaison skills.

For the majority of the cohort it was their first opportunity to witness skills of diplomacy, tact, and handling objections. The expertise the supervisor demonstrated with customers had an immediate effect on the cohort. They showed him great respect and listened carefully.

At the locations they handled a range of electrical applications, some with technical problems which needed resolving. It provided valuable experience in problem-solving using analytical ability. The majority of the team responded positively to the experience, and expressed the view that 'people skills' can only be acquired through experience in the real world.

> Dealing with customers was very valuable experience. Now I know it's an important issue. I hadn't given it much thought before. (S2, G1)

> It was my first time in the work environment, and I learnt many new things from other people. (S5, G1)

Technical content

The planned schedule of instruction in meter and transformer technology was not feasible for reasons already stated. The re-scheduling resulted in the cohort experiencing new technology and new applications, which had not been pre-taught at school. It was therefore a challenging week and a testing time for the group to absorb the new technology and its components. For some of the group it was confusing and hard for them to assimilate new procedures. A typical comment was:

> With the programme change, I found it difficult to adjust to a different subject without any prior preparation. I was unfamiliar with the equipment and applications. (S5, G1)

Two of the team found the experience stimulating and relished the challenge.

> Learning new techniques and applications is great experience. It widens your knowledge and holds your attention. (S2, S5, G1)

Supervisor's report

The revision in the schedule resulted in exposing the cohort to technology and job skills for which they had not been prepared at school. At first they had problems dealing with the changes. They had to rely on guidance from the supervisor. Nevertheless they showed good motivation and interest in the job details they observed and were enthusiastic and presented themselves well with customers, and they followed instructions and observed the regulations.

Teacher and supervisor assessment of student performance

During the school-based period the cohort was assessed on various performance criteria. The assessments were made by the school teaching staff.

At the work placement location the supervisor from the work provider made a further assessment of the cohort performance at the work site, using the same performance criteria.

Figure 4 is a bar chart comparing the cohort performance between the school-based activities and the work placement activities.

The data were collected via an evaluation form for each student and distributed to teachers and work site supervisors. (see appendix C)

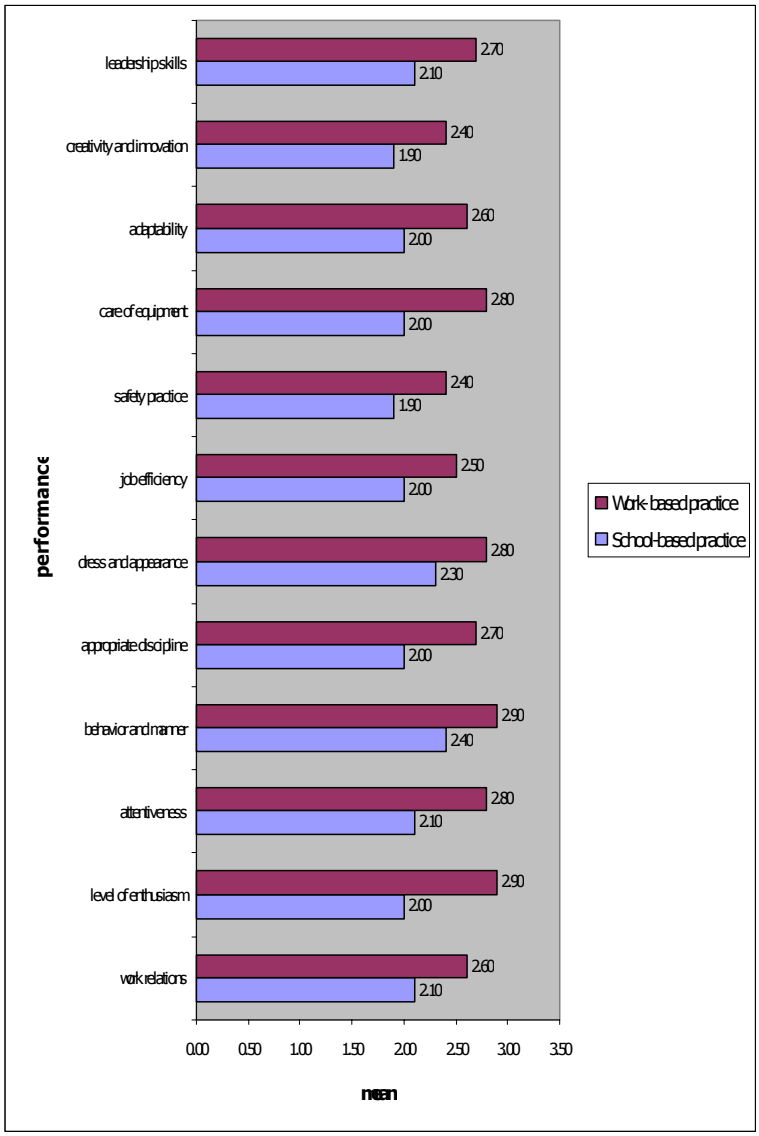


Figure 4 Means of student performance at school and Banglamung Electric Authority

Figure 4 indicates that the first week of work-based practice produced increased performance levels in all disciplines compared to the school-based practice. The highest means were 'behaviour and manner' and 'level of enthusiasm'. The lowest means were 'creativity and innovation' and 'safety practice'.

The paired sample statistic t-test was conducted for the work-based learning programme students (n=10) to compare between school-based practice and work-based practice. Student performance criteria were reported.

$$\mathbf{H_0} : \mu_2 = \mu_1$$

$$\mathbf{H_1} : \mu_2 > \mu_1$$

μ_1 = means of school-based practice.

μ_2 = means of work-based practice.

Table 1 presents twelve performance criteria between school-based practice and work-based practice at Banglamung Electric Authority.

	n	Mean ($\bar{X}$)		SD		t	p
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	2.10	2.60	0.32	0.52	3.000	0.0075
2. level of enthusiasm	10	2.00	2.90	0.47	0.32	5.014	0.0005
3. attentiveness	10	2.10	2.80	0.32	0.42	4.583	0.0005
4. behaviour and manner	10	2.40	2.90	0.52	0.32	3.000	0.0075
5. appropriate discipline	10	2.00	2.70	0.47	0.48	3.280	0.0050
6. dress and appearance	10	2.30	2.80	0.48	0.42	3.000	0.0075
7. job efficiency	10	2.00	2.50	0.00	0.53	3.000	0.0075
8. safety practice	10	1.90	2.40	0.57	0.52	3.000	0.0075
9. care of equipment	10	2.00	2.80	0.47	0.42	4.000	0.0015
10. adaptability	10	2.00	2.60	0.67	0.52	3.674	0.0025
11. creativity and innovation	10	1.90	2.40	0.32	0.52	3.000	0.0075
12. leadership skills	10	2.10	2.70	0.57	0.67	3.674	0.0025

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

It was evident that many of the cohort had difficulty in adjusting and re-orienting to the sudden content change in the work schedule. Future programmes should ensure the school-based activities and the work site experience be more carefully plotted and harmonised, to avoid a similar occurrence. Moreover, in the future, the induction and orientation programme should include a session to assist the cohort to adapt and adjust to changes in the working environment. They must be alert and receptive to change at short notice and be able to improvise and operate effectively in changing circumstances (McLeish, 2002).

Moreover, the teacher and supervisor assessments indicate that the students' weakness is in 'creativity and innovation' and 'safety practice'. It is essential in today's employment market for students to develop their lateral thinking skills to meet employers' demands. McLeish (2002) reports employees need to be able to demonstrate that they can contribute to innovative practices. They need to be able to find creative and practical solutions to problems, show initiative and independence, be able to work in teams, and adapt to new situations. Health and safety practice is an issue that the school should address and focus on carefully in the future. More comprehensive instruction during the school preparation period must be implemented.

However, all data show that the students have reacted positively by showing enthusiasm and keenness to learn.

5.3.2 Weeks 2, 3 & 4

The next three weeks assignment for the cohort was at a building contractor in the process of installing the electrical wiring and lighting system at a new apartment block. The job was repetitious which ensured the cohort would get sufficient practice, to be able to learn at a tolerable pace. The supervisor in charge of the students was a Banglamung Electric Authority employee as the job had been sub-contracted. The students were well drilled by the supervisor to ensure that everyone was aware and

took heed of the rules and regulations for a building site as prescribed by the company. Each student was given the appropriate safety equipment.

Personal development

It was apparent that very few of the cohort could work independently without supervision. At first they lacked the confidence to ask the supervisor for assistance. They presented as reticent and awkward. The supervisor took time to demonstrate the tasks to be performed. Once he had gained their confidence he encouraged them to work in groups. As the placement progressed, it was seen that some pairs were able to work with minimum supervision and were urged by the supervisor to help their colleagues. The significant observation was that the cohort needed considerable practise time and instruction, before they had the confidence to work effectively without constant supervision.

Technical content

Although electrical wiring is taught at school, working in the real situation presented some new problems and challenges. The cohort only had an elementary, superficial knowledge of electrical applications, and lacked knowledge in breadth of specific applications. It was seen that skills in dexterity and familiarity with components require constant practise and usage.

They needed work practise to affix cabling to the walls, without damaging the plaster. The students had to repeat the exercise many times with advice and help from the supervisor.

Supervisor's report

At first there was some absenteeism and poor timekeeping, and they had to be reminded of the rules and their obligations, and the performance and attendance

improved (Supervisor's reports written on 12/5/03/, 14/5/03). Some of the cohort needed guidance and direction to develop their confidence.

As the placement progressed, the standard and precision of the work improved, as did the confidence level (Supervisor's report written on 22/5/03). The placement provided valuable learning experience for the cohort. It was their first time to prove they could work unaided and on their own, after some initial guidance and help from the supervisor. The freedom and trust shown them was a highly motivating factor. They relished the challenge and took it up with enthusiasm. They were able to work at their own pace which built confidence and their competence levels in the job progressed steadily.

Some students need to develop teamwork skills. In some cases, when working individually the students were negligent and abused the rules and regulations including safety at the work site. They had to be reminded of the procedures and code of conduct.

Teacher and supervisor assessment of student performance

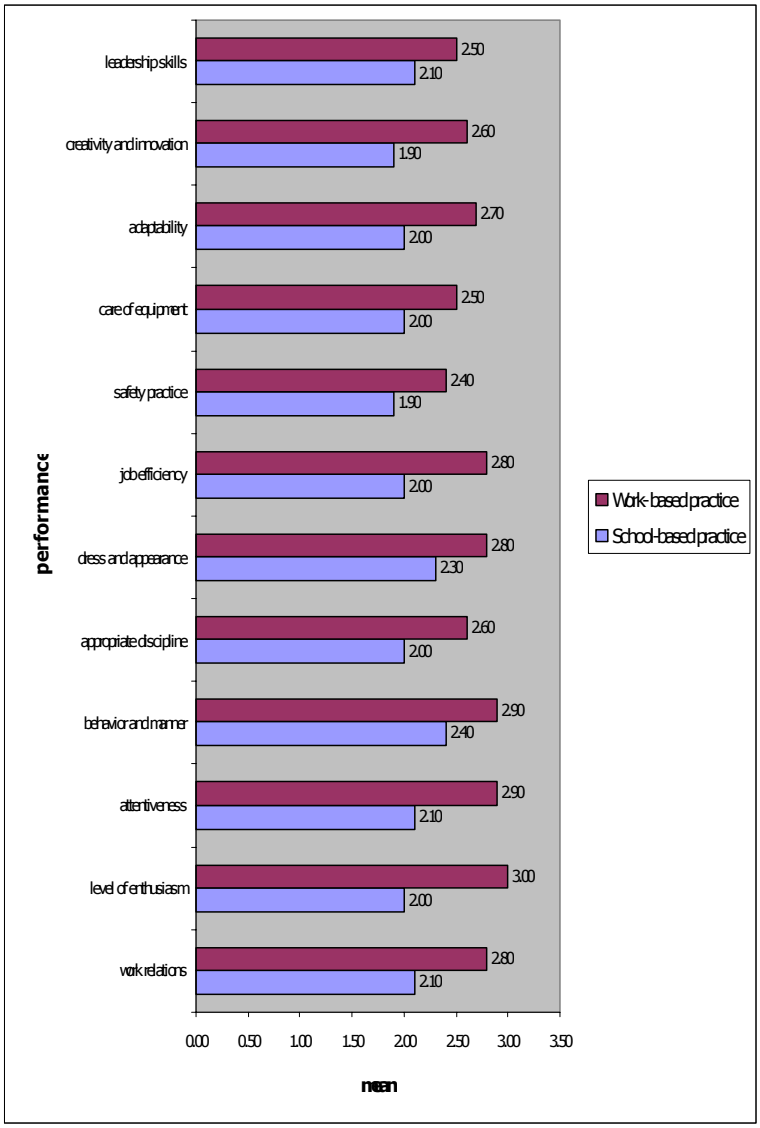


Figure 5 Means of student performance at school and Banglamung Electric Authority contractor

Figure 5 presents the performance levels at this location. Results indicate that the highest mean was 'level of enthusiasm' and lowest mean was 'safety practice'.

$$\mathbf{H_0}: \mu_2 = \mu_1$$

$$\mathbf{H_1}: \mu_2 > \mu_1$$

μ_1 = means of school-based practice.

μ_2 = means of work-based practice.

Table 2 presents twelve performance criteria between school-based practice and work-based practice at Banglamung Electric Authotity (contractor)

Performance criteria	n	Mean ($\bar{X}$)		SD		*t*	*p*
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	2.10	2.80	0.32	0.42	4.583	0.0005
2. level of enthusiasm	10	2.00	3.00	0.47	0.67	4.743	0.0005
3. attentiveness	10	2.10	2.90	0.32	0.57	4.000	0.0015
4. behaviour and manner	10	2.40	2.90	0.52	0.57	2.236	0.0260
5. appropriate discipline	10	2.00	2.60	0.47	0.52	2.714	0.0120
6. dress and appearance	10	2.30	2.80	0.48	0.63	2.236	0.0260
7. job efficiency	10	2.00	2.80	0.00	0.63	4.000	0.0015
8. safety practice	10	1.90	2.40	0.57	0.52	1.861	0.0480
9. care of equipment	10	2.00	2.50	0.47	0.71	2.236	0.0260
10. adaptability	10	2.00	2.70	0.67	0.48	2.689	0.0125
11. creativity and innovation	10	1.90	2.60	0.32	0.52	4.583	0.0005
12. leadership skills	10	2.10	2.50	0.57	0.53	2.449	0.0185

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

At this location, the students' level of enthusiasm was noticeably high and it indicates the placement had held student interest in the practical activities.

The observation field notes show the students have made some improvement in teamwork skills. This is an area highly sought by employers. Dearing (1996) in particular cites that personal and interpersonal skills and effectiveness in working as a member of a team is what employers wish to see.

For future development the programme content should provide more support to enable the student to build skills working with others, and manage their own learning. Instruction in codes of conduct and rules of health and safety in the workplace need to be given greater emphasis at the school-based preparation stage.

It is apparent from observation and the work site supervisors' reports that student discipline in this area needs improvement. We must emphasise strongly the importance of appropriate work site regulations to meet the agreed standards. In the next cycle the school should consider more practical experience and preparation at school through workshops prior to the placement. Workshops can best replicate the working environment and can have a motivating influence (Thiessen and Looker, 1998).

The teacher and supervisor assessments also indicate that 'leadership skills' show low development. Laurie Field (2001) found that "many companies reflected that the changes of the last decade that had led to flatter organisations and to team approaches to work meant the need for the individual employee to take on leadership roles throughout all levels of the enterprise had increased".

We need an induction course to focus on developing many skills for the workplace. For example, the cohort need to develop lateral thinking and problem-solving skills to enhance their employability potential.

5.3.3 Weeks 5 & 6

Sophon Cable Television Company

The cohort spent two weeks with this company which supplies a cable service for television systems. Their duties covered new installations, maintenance, and replacing faulty systems. They were split into groups of two and three and sent to various customer locations.

Communication and instruction

I observed that the supervisor on many occasions had difficulty communicating the instructions to the students. He appeared to be rushed for time and lacked basic teaching and communication skills.

As some of the students commented:

> When I have a problem I am afraid to ask for help. At school I know the teacher and don't have the same reservations. (S5, G1)
>
> I would like more support from the school. They should supply a teacher to help at the work locations. Teachers know what makes students tick and how to handle them. (S7, G1)
>
> The supervisor assumed we had a greater knowledge of the subject than was the reality. He should have checked with our teachers. (S9, G1)

> We didn't understand the task detail sometimes, but were worried about interrupting the lesson. (S3, S4, G1)

One of the team pointed out:

> At school we have a step by step demonstration of the task in a logical progression. Here we have to follow as best we can. (S1, G1)

Technical content

The technology and components covered during the secondment were in many instances beyond the scope of the cohort. The school programme had provided only a basic grounding in electrical component installations. Cable television systems technology is not taught in any depth at school. The repair work encompassed technical areas and equipment, which were new ground.

One commented:

> Some of the equipment was strange to me. I was seeing it for the first time. (S3, G1)

Although the group were given adequate exposure to hands-on practical work in a variety of situations many would have liked the usage of the components practiced to be more varied. Some complained about the repetitious nature of their work detail but two of the group stated:

> I enjoyed the challenge and variety. (S2, S5, G1)

Another stated:

> At school we only learn the basics. I am glad here to learn in-depth about cable television systems. (S7, G1)

Personal development

Most of the cohort agreed that the placement had installed a new sense of urgency and commitment to the job. Their timekeeping and self-discipline had improved and their loyalty to the team had the effect of not wanting to let their performance slip. Many of the group reported working with the real components had given them confidence and a new belief in their abilities. As one remarked:

> It has made me brave in trying to work with the new stuff. (S4, G1)

Another agreed

> I now have the confidence to try and practise with the new equipment, and got a lot of job satisfaction helping to fix a customer's problem. (S1, G1)

Supervisor's report

The tasks for students were divided between maintenance and repairs and new installations. The supervisor found that the student application, attentiveness and effort was diligent but they lacked experience and know-how with the component's maintenance and repairs. They were deficient when faced with problems such as defective cable systems and being able to analyse the cause of the defects. They needed all round practical work experience in the maintenance requirements, and maintenance technology.

There was some absenteeism and lateness to work at the start of the programme (Supervisor's written report 28/5/03) but this was addressed, and their overall performance improved. The report noted that student interaction with the company employees was awkward and reticent at the beginning of the programme, but improved as they became more familiar with their environment.

The company thought the school should provide more instruction on cable maintenance and repair technology. This could be achieved by a longer period for work placement to give more comprehensive course experience. However, the cohort had performed at a satisfactory level, and the programme had been an important learning experience for this company.

Teacher and supervisor assessment of student performance

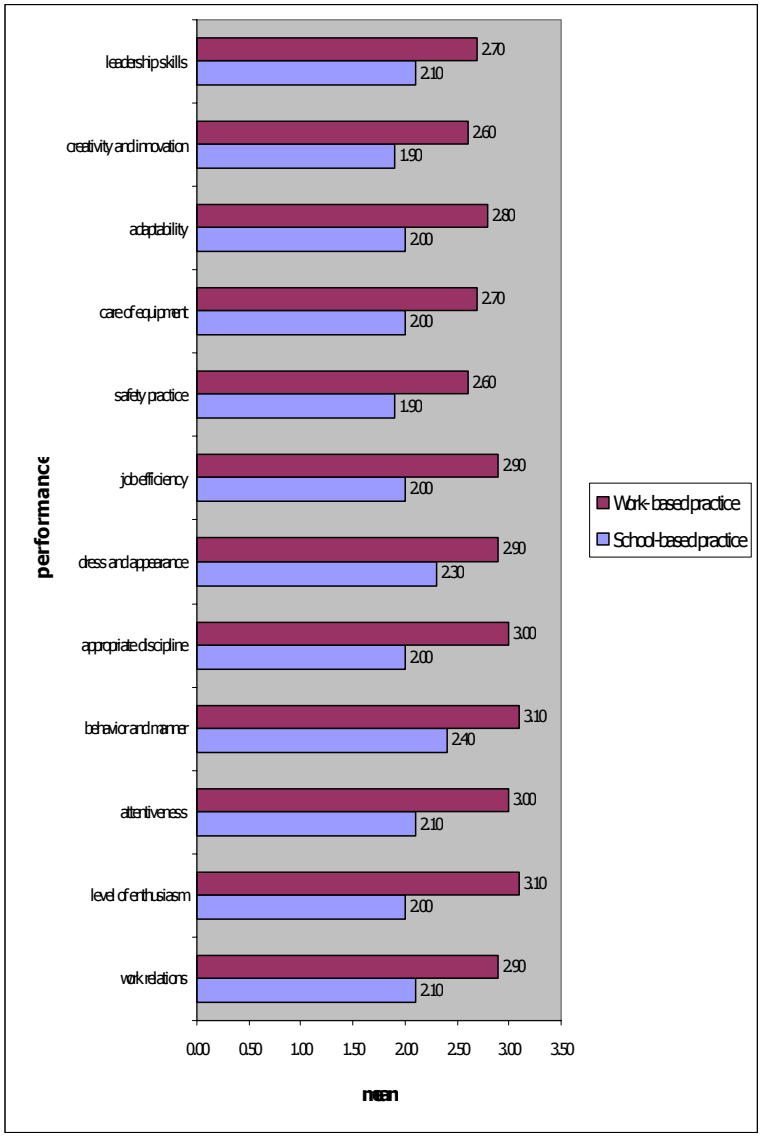


Figure 6 The means of student performance at school and Sophon Cable Television Company

The performance criteria levels are seen to progressively improve as indicated in figure 6. The 'level of enthusiasm', and 'behaviour and manner' ratings show the highest means. 'Creativity and innovation' and 'safety practice' were the lowest means.

$$\mathbf{H_0} : \mu_2 = \mu_1$$

$$\mathbf{H_1} : \mu_2 > \mu_1$$

μ_1 = means of school-based practice.

μ_2 = means of work-based practice.

Table 3 presents twelve performance criteria between school-based practice and work-based practice at Sophon Cable Television Company

Performance criteria	n	Mean ($\bar{X}$)		SD		*t*	*p*
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	2.10	2.90	0.32	0.57	4.000	0.0015
2. level of enthusiasm	10	2.00	3.10	0.47	0.74	6.128	0.0000
3. attentiveness	10	2.10	3.00	0.32	0.67	3.250	0.0050
4. behaviour and manner	10	2.40	3.10	0.52	0.32	4.583	0.0005
5. appropriate discipline	10	2.00	3.00	0.47	0.67	3.000	0.0075
6. dress and appearance	10	2.30	2.90	0.48	0.74	1.964	0.0405
7. job efficiency	10	2.00	2.90	0.00	0.74	3.857	0.0020
8. safety practice	10	1.90	2.60	0.57	0.52	2.689	0.0125
9. care of equipment	10	2.00	2.70	0.47	0.82	2.689	0.0125
10. adaptability	10	2.00	2.80	0.67	0.63	2.449	0.0185
11. creativity and innovation	10	1.90	2.60	0.32	0.52	3.280	0.0050
12. leadership skills	10	2.10	2.70	0.57	0.67	3.674	0.0025

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

From the supervisor's report and my observations the cohort had developed good performance levels with this company. They were able to experience different tasks in many different locations, which helped them increase their general knowledge. However, there are aspects, which will need to be improved in cycle 2. The instructor's teaching skills and ability to impart information effectively needs addressing. Moreover, the team leaders had problems communicating with the students. This was a major obstacle between students and instructor. We need more co-operation with the company to advise them on appropriate instruction methods and develop communication between employees and students.

The technical content of the tasks assigned at the placement was not compatible with what the students are taught at school. The students have never experienced the specific equipment encountered at the work site. We need to integrate and refine what is taught during the school preparation to match the experience of the work site. Future programmes should give the students more opportunities to practise with the equipment used in the workplace. We must re-examine the school preparation curriculum to accommodate the work provider's situation. The teacher and supervisor assessments presented in figure 6 indicate that the variety and diversity and increased customer contact has produced an effective stimulant to the cohort performance. However, as the data shows we need to pay careful attention to 'creativity and innovation' and 'safety practice' to improve performance levels.

5.3.4 Week 7

A and Air service (Banglamung Electric Authority Contractor)

The company supplies new air-conditioning systems and provides a maintenance and repair service. The students were split into groups and worked at different customer locations. Each group was assigned to a team leader.

Health and safety

This company installs air-conditioning systems in new buildings, often at considerable height. On some sites students worked inside whilst others were on scaffolding outside.

Sometimes, the standard safety precautions were ignored by the students. However, on many occasions, the company had to remind the students to use the safety equipment. Two commented:

> There were many locations where we needed to be careful about safety. (S2, G1)

> The job was challenging for me, and I need to learn more about safety practice. (S10, G1)

Communication and instruction

The employer had allowed very little time for instruction, and there appeared to be minimal supervision at the job site. One pair of students complained they were told only in very brief terms what to do. There was no in-depth practice or instruction. Another member of the cohort reported:

> Some tasks over-ran and left either no time or less time for learning. (S6, G1)

Personal development

Students were able to learn from each other by working in pairs and as a team in a constructive work setting. They believed the most valuable lesson and accomplishment from the course to be cultivated, is relating well to, and having respect for their co-workers.

Technical content

Air-conditioning systems are very complex and the students need to learn a considerable range of components in the different systems available. At school the subject is only taught at an elementary level and not covered in sufficient depth to have immediate relevance to the work site. Many students complained that the tasks were too complex and that they lack the basic skill to fulfil those tasks. (S1, S4, S5, S6, G1)

One student asked for the school-based content to have greater correlation and relevance to the work experience. (S2, G1) A number of students suggested that the work experience time be expanded to accommodate the learning time needed to master the skills required. (S10, S3, S6, G1)

Supervisor's report

Student attendance was a problem at first, (Supervisor's written report 5/6/03) until they were told in firm terms to conform to their contract. Safety standards and how to work with appropriate caution needs to be instilled into students. Our work environment is often potentially hazardous, and students had to be continually reminded of the safety procedures. The school should give students training on health and safety before coming to the workplace. Overall the application, discipline, and concentration levels were satisfactory. They need to know more about the technical terms and individual component parts to be able to carry out instructions more efficiently. The programme was too short, and the school should consider a longer period in the future. The company welcomed the project and wished to continue it.

Teacher and supervisor assessment of student performance

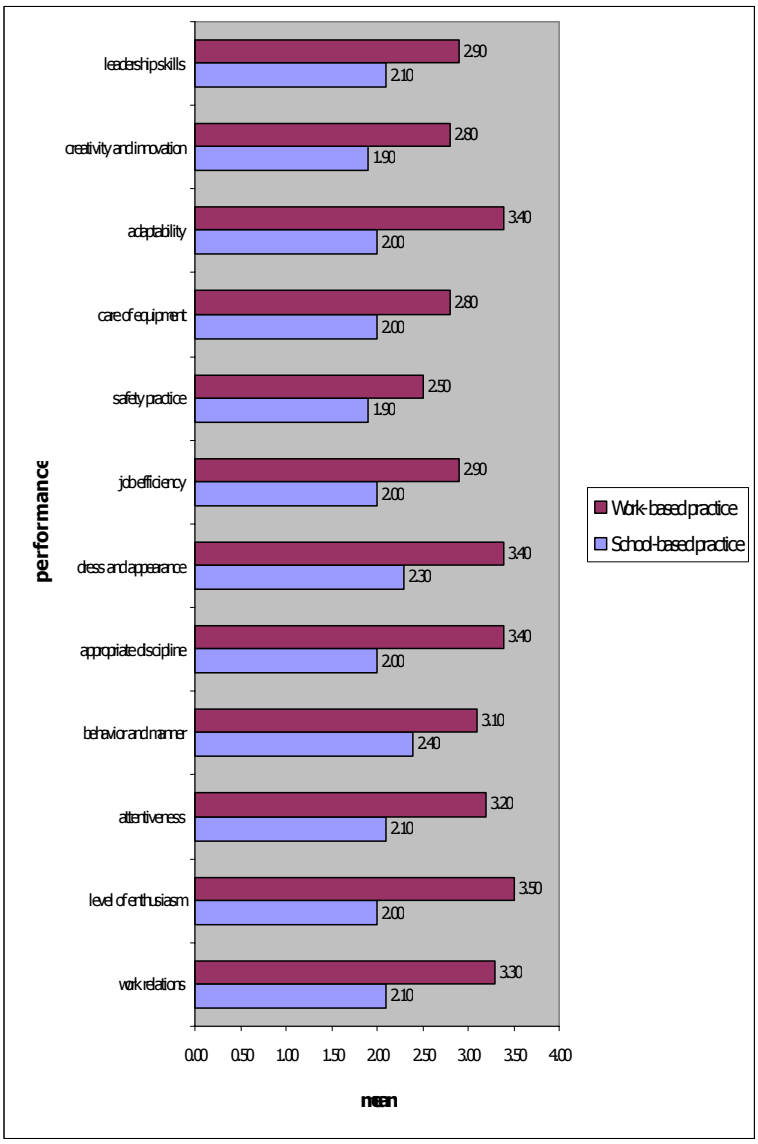


Figure 7 The means of student performance at school and A and Air service (Banglamung Electric Authority Contractor)

Figure 7 indicates that at this location the 'level of enthusiasm' was the highest mean. The lowest mean was 'safety practice'.

$$\mathbf{H_0}: \mu_2 = \mu_1$$

$$\mathbf{H_1}: \mu_2 > \mu_1$$

μ_1 = means of school-based practice

μ_2 = means of work-based practice.

Table 4 presents twelve performance criteria between school-based practice and work-based practice at A and Air service (Banglamung Electric Authority Contractor)

Performance criteria	n	Mean ($\bar{X}$)		SD		*t*	*p*
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	2.10	3.30	0.32	0.67	6.000	0.0000
2. level of enthusiasm	10	2.00	3.50	0.47	0.71	4.881	0.0005
3. attentiveness	10	2.10	3.20	0.32	0.79	4.714	0.0005
4. behaviour and manner	10	2.40	3.10	0.52	0.57	4.583	0.0005
5. appropriate discipline	10	2.00	3.40	0.47	0.70	5.250	0.0005
6. dress and appearance	10	2.30	3.40	0.48	0.70	3.973	0.0015
7. job efficiency	10	2.00	2.90	0.00	0.99	2.862	0.0095
8. safety practice	10	1.90	2.50	0.57	0.53	3.674	0.0025
9. care of equipment	10	2.00	2.80	0.47	0.63	2.753	0.0110
10. adaptability	10	2.00	3.40	0.67	0.70	3.772	0.0020
11. creativity and innovation	10	1.90	2.80	0.32	0.92	3.250	0.0050
12. leadership skills	10	2.10	2.90	0.57	0.88	3.207	0.0055

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

The teacher and supervisor assessments indicate the standard of student safety practice needs urgent attention. Special focus must be given to raising student awareness of this crucial discipline. We need to ensure that the safety standards are carefully monitored for the next cycle of students. The placement proved to be a good training ground for the cohort offering a variety of job skills and practical opportunities for the students to widen their experience of specific activities. However, the school should provide a more comprehensive technical foundation in the school-based preparation to overcome the problems experienced at the work site. The company was a co-operative partner, and the relationship can be developed to give the cohort a varied source of job experience and activities. We should provide more support and training facilities and increase the mentoring facility at the work location.

5.3.5 Week 8

Sahamit Air Cooling Service (Banglamung Electric Authority Contractor)

The company provides a comprehensive installation, repair, and maintenance service across a range of electrical installations and air-conditioning systems. The cohort was split into two groups of 5, and worked at client locations at industrial premises and private housing. A team leader was put in charge of each group.

Health and safety

There were many problems regarding the implementation and observation of work site rules and regulations, due to a shortage of supervisory staff. Potentially dangerous locations and situations were overlooked or ignored.

Two of the cohort reported their concern over safety procedures, and were uncomfortable working on some of the jobs at heights without proper regard to protective headgear and safety harnesses.

> We worked on many occasions outside, and high up. We were afraid for our safety. (S2, S8, G1)

Personal development

The group expressed an increased sense of motivation and enthusiasm for their role. They were able to see the tangible effects of their work, which gave them pride in the job. They also commented that their attention spans and levels of concentration had improved. The mixed variety of tasks and skills required had impressed upon the group the need for flexibility and adaptability.

Two of the group reported:

> The combination and variety of work was a great learning experience. It taught us to think quickly and be prepared for anything. (S4, S6, G1)

Technical content

The nature of working for a contractor means that many of the tasks to be carried out are spontaneous emergencies and do not conform to a regular pattern, as experienced in school. One moment the students will be working on new installations, the next they will be faced with repairing an industrial air cooling system. In other words the work site is not like school instruction where the knowledge learned is in progressive steps and conforms to a regular pattern. Many of the cohort found reacting to customer demands difficult to assimilate and respond to. One student complained:

> I can follow the procedures at school, but when you have to react to an emergency it is completely different. (S6, G1)

Another suggested :

> We need to learn more problem-solving skills, to meet the demands of the real work site. (S9, G1)

Most of the group thought the programme should be extended, as often the schedule over-ran or some of the tasks to be done took longer than planned.

Supervisor's report

The students' application to, and enthusiasm for, the job was very satisfactory. Their interest and involvement and commitment to the tasks was consistent. The supervisor stated that on occasions the company had difficulties with providing the students with appropriate instruction due to the demands of work. Moreover, they were not able to provide sufficient cohort supervision. Because of time constraints**,** the programme should be longer to accomplish the skill level desired, especially in the area of problem-solving, and being able to react and adapt to sudden changes in working conditions. The students should have more awareness of work site regulations and procedures.

Teacher and supervisor assessment of student performance

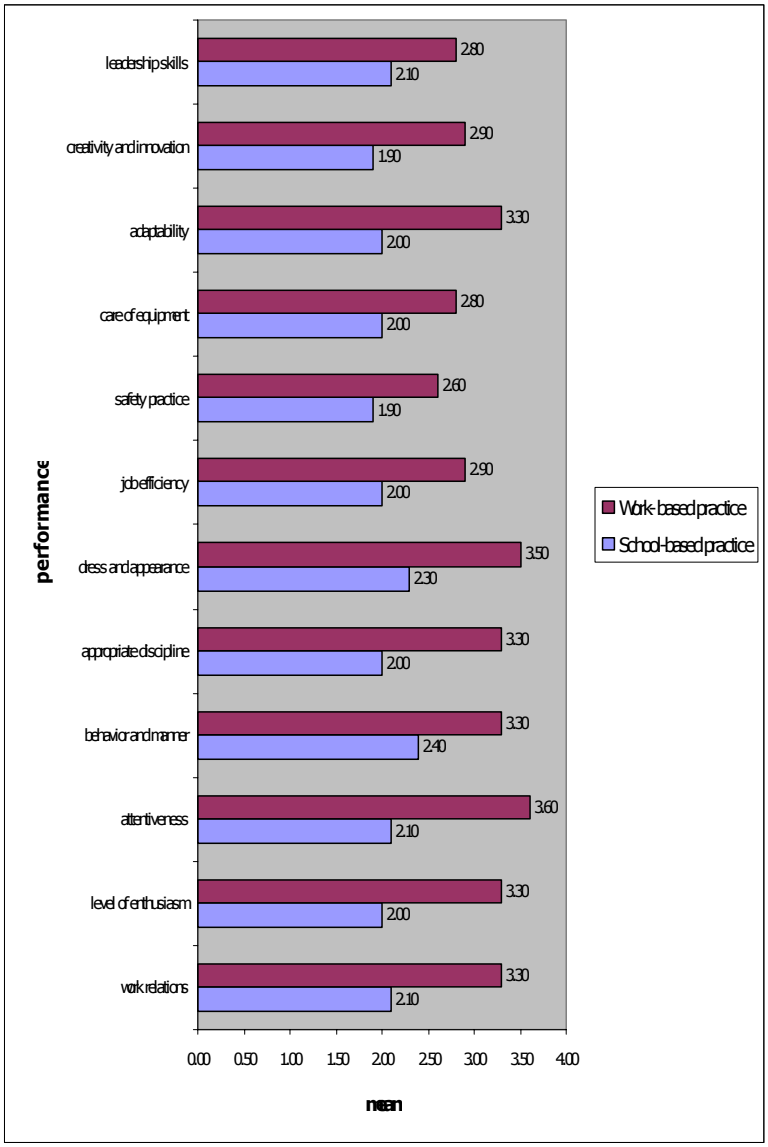


Figure 8 The means of student performance at school and Sahamit Air Cooling Service (Banglamung Electric Authority Contractor)

The data for the final placement location shows that 'attentiveness' was the highest mean and 'safety practice' was the lowest mean.

$$\mathbf{H_0} : \mu_2 = \mu_1$$

$$\mathbf{H_1} : \mu_2 > \mu_1$$

μ_1 = means of school-based practice.

μ_2 = means of work-based practice.

Table 5 presents twelve performance criteria between school-based practice and work-based practice at Sahamit Air Cooling Service (Banglamung Electric Authority Contractor)

Performance criteria	n	Mean ($\bar{X}$)		SD		*t*	*p*
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	2.10	3.30	0.32	0.82	4.129	0.0015
2. level of enthusiasm	10	2.00	3.30	0.47	0.67	4.333	0.0010
3. attentiveness	10	2.10	3.60	0.32	1.17	4.025	0.0015
4. behaviour and manner	10	2.40	3.30	0.52	0.82	2.862	0.0095
5. appropriate discipline	10	2.00	3.30	0.47	0.95	3.881	0.0020
6. dress and appearance	10	2.30	3.50	0.48	0.71	3.674	0.0025
7. job efficiency	10	2.00	2.90	0.00	0.74	3.857	0.0020
8. safety practice	10	1.90	2.60	0.57	0.52	2.689	0.0125
9. care of equipment	10	2.00	2.80	0.47	0.92	3.207	0.0055
10. adaptability	10	2.00	3.30	0.67	0.82	3.881	0.0020
11. creativity and innovation	10	1.90	2.90	0.32	0.88	3.000	0.0075
12. leadership skills	10	2.10	2.80	0.57	0.79	2.689	0.0125

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

This is a medium size company geared to responding to customer demands especially in repair and emergency work. The company was not able to provide adequate training facilities. Furthermore, the cohort was exposed to rapid response activities, attending to client needs, and emergencies for which they have had little experience. However, it was a stimulating experience for the cohort and this is reflected in the high 'attentiveness' rating in the teacher and supervisor assessments. The rating for 'safety practice' continues to show low performance levels. Moreover, there were problems with the supervision of students, and the work provider's adherence to safety rules and procedures. There needs to be more collaboration, and co-operation between the company and the school, and more support and training for their staff will have to be provided in cycle 2 to make the placement more effective.

The health and safety codes of conduct must be more stringently monitored and applied. We need to seriously consider the appropriateness of the training by this provider for inclusion in the next cohort programme, and as Callan (2003) acknowledges we must appreciate the importance of having skilled workplace instructors who 'understood student learning styles'.

5.4 Student views of the work-based learning programme after the practical experience

The group met for a review of their feelings and attitudes to the three months practical experience at school and at their work placement locations. Above all we wanted to establish what in their view had been the main benefits of the programme, and the obstacles they encountered, and whether it had encouraged their future career objectives.

5.4.1 Change in personal development

The students considered that the work placement had been of great benefit in developing their professional growth. Most of the cohort had become more self-aware and reflective about themselves and their personal attributes. Many declared a greater sense of responsibility and connection to the outside world. They had increased self-esteem and self-confidence. Here are some representative comments:

> My timekeeping, sense of responsibility and motivation to do a good job has really improved. (S4, G1)

> At school when lunchtime came we would drop everything. At the work site we would continue with the job until completed. We didn't want to appear uncommitted and didn't want to leave a job half-done and leave it vulnerable to the elements. (S3, G1)

> At school my concentration levels were poor, because it wasn't important for me. When the job needs proper attention in the real world you apply yourself. It's your responsibility. (S1, G1)

> I didn't understand what working life was all about. At school it's only learning theory. In the real world people are depending on you to do a good job. I got satisfaction out of performing well and it's given me confidence. (S6, G1)

> It's been good experience and given me the proof I needed that I could do the job. I feel good about myself. (S5, G1)

5.4.2 Change in attitude to work and future careers

Most of the cohort considered the most important feature of the three-month programme had been the opportunity to sample and test the workplace, and to

experience the culture and ethic of the working environment. In many cases pre-conceptions of the workplace had been misplaced and the reality had brought about a change in attitudes. Fears previously expressed at the focus group 2002 about various skills both technical and social had now abated. Many at the interview stressed the experience had given them a point of reference and framework in which to focus their thoughts. Here are some of the most memorable and relevant comments:

> It's made me realise how important getting a good job is. (S7, G1)
>
> I thought the job might be boring, but there was a great variety and customer contact made it interesting. (S10, G1)
>
> It has made me more open-minded about career opportunities, and made me realise what skills and aptitudes I need. (S4, G1)
>
> I didn't pay attention to rules. Now I know I have to pay attention. It's important. (S9, G1)
>
> It has given me the proof I needed that I can do the job in a real work setting. I feel more comfortable and proud now. (S5, G1)
>
> I learned there are many different kinds of people in the workplace and I know I must learn to adapt. (S10, G1)

The cohort in general expressed their thoughts and feelings more freely and less guardedly, compared to the pre-programme interview. They presented as more confident and comfortable with themselves and were able to interact more freely than previously. The diffidence and restraint exhibited at the pre-programme interviews had been replaced by confidence and optimism for the future. In particular the group referred to their attitude and respect for the work site codes of conduct as an example of their advance in personal development.

5.4.3 Contribution to knowledge and practical skills

Most considered the experience to be a period of enlightenment in that it opened their minds and expanded their perceptions of the wider community and the working environment. They had been exposed to new technology and equipment, which was not available at classroom instruction. They generally felt that the programme had been a significant contribution to their knowledge of the work site in terms of occupational skills and for the experience of having contact with a wide range of people.

> Just by being at work and mixing with the other employees was a learning experience I couldn't get in the classroom. (S1, G1)

> I was very enthusiastic working with some of the new equipment, and it was good for me, and opened my mind to other opportunities. (S4, G1)

> I learned that working to strict time pressures is not easy, when you have to work with accuracy. (S3, G1)

> The variety and change of different job applications was good, not boring. (S8, G1)

> It's given me a wider vision for the future in the wider community. (S1, G1)

> We had to work as a team often under pressure. You and your partner are dependent on one another. There is no place for weak links. (S7, G1)

> The teamwork exercises at school had been useful preparation but could not simulate the sense of urgency and tension experienced at the work site. It wasn't like at school when we had time for a joke and a chat. We were always working against the clock. (S9, G1)

5.4.4 Student concerns about the programme

a. Work practices

The students thought that the school should provide better preparation in work standards. At one location the students were concerned about the safety precautions and protective equipment. The work providers can co-operate to help with this problem.

b. Technical aspects

Some of the placements demanded technical expertise with equipment and instruments for which the students had not been prepared. They want more in-depth instruction with air-conditioning systems and needed better preparation for the Sophon Cable Television Company experience. The school-based period should arrange a more comprehensive grounding in cable laying techniques for the next cohort.

c. Work site instruction

The principal reservations voiced by the cohort were the style and method of teaching, and demonstration of their nominated tasks.

> It wasn't like at school when the teacher gives us deliberate progressive steps to follow. Our supervisor was often pressed for time and told us to follow as best we can. (S2, G1)

> Three supervisors gave three different versions of methodology for one job. It was confusing. (S4, G1)

> Most of the work site instructors had limited teaching skills. They knew their subject, in terms of hands-on experience but found difficulty imparting their knowledge to us in simple terms we could understand. (S10, G1)

5.5 Reflection

The results of the statistics from the teacher and supervisor assessments indicate that the means during the work-based practice period was higher than the means during the school-based practical period. It can be interpreted that the preparation students received at school had contributed and had prepared them for the work-based practice period. Moreover the work-based practice period with increased experience had stimulated and motivated the cohort to produce higher means of performance at each workplace location.

The research data collected has provided significant and clear evidence of the programmes's impact to date, and has revealed issues that need to be resolved and problems addressed prior to cycle two. The analysis of data has presented both positive and limited outcomes.

5.5.1 Positive outcomes

From all assessments it is seen that there has been a progressive and positive improvement in the cohort's performance over the duration of the programme.

Principal areas of change as a result of the programme were:

- A heightened sense of responsibility and accountability.

- An increase in commitment and sense of urgency and purpose.

- A greater appreciation and capability to work and mix and integrate within the greater community.

- A wider vision for the future and their career prospects.

- The development of broad communication skills in the working environment.

- An improvement in technical and generic skills.

- A greater appreciation of classroom learning.

5.5.2 Limitations

The research findings clearly indicate there are shortcomings in the current programme, which need to be addressed prior to commencing cycle two. Overall the work placements should reflect and provide more in-depth practical experiences and correlate to the experiences learned during the school-based preparation period.

The specific areas of concern as indicated by analysis of the data were:

- Lack of safety practice awareness. There is an urgent need to address this as a priority.

- Lack of appropriate equipment in certain areas for practical instruction at school.

- Lack of cohesion and co-operation with our work placement providers to deliver a properly integrated programme to link the school-based activities to the work site experience.

- Lack of skilled technical trainers at the work site who can teach in progressive, logical steps and who can communicate in terms the students understand.

- Lack of in-depth instruction on regulations and codes of conduct at the school and workplace.

5.5.3 Summary

The data from the teacher and supervisor comparative assessments at school and the work site locations showed improved performance levels across all criteria. Of particular significance was the student motivation and attitude to work, which was reflected in the assessments for 'levels of enthusiasm' and 'attentiveness'. The work site has engendered a sense of urgency and commitment to the task, and the cohort etiquette and decorum at the job location has matured. The students exhibit a new belief and confidence in their own abilities, and capabilities, both in and out of the job. They are more self-assured and show more maturity in their relationships, and a greater sense of identity and self-worth. In particular they had the sense to voice their concerns about health and safety issues, which demonstrates their ability to think independently (Kincheloe, 1999).

Another quality that has been developed is consideration for, and empathy with others, with whom they had to work.

MacAllum , McDonald, and Johnson (2002) support this view and comment "students also reported that the LAMP experience had considerably improved their ability to work well with the other employees. Students noted considerable gains in self-confidence as well".

Through the process of interaction with other company employees their interpersonal skills have improved and they recognise it is important for their progress in the job to relate well to, and have good working relations, with their co-workers.

Each of the cohort commented that their teamwork experience at the work site had been a considerable learning curve, and the programme had given them an opportunity for self-reflection and consideration for what they want in the future. Moreover it provided a platform to focus carefully on their strengths and weaknesses and concentrated their thoughts objectively to reach personal goals.

There are however improvements which need to be implemented, prior to cycle 2.

The priority for the next cycle is closer liaison and co-operation with the industry partners to ensure the school-based elements of training and the practical activities at the work site are consonant and complementary. Special focus must be given to ensuring students are conversant with the technology and equipment in use at the work site. During the school preparation period appropriate equipment instruction can be given to accommodate this gap in their knowledge.

The selection of work providers needs reassessment as the level of training and supervision in some cases fell below the standard we would deem appropriate. There were sometimes communication problems between the students, employees, and instructors.

We need work providers who have a training resource and expertise, which is efficient and professional. The school and provider must co-operate to develop this training resource.

An induction and orientation training seminar should be held for Aksorn School of Technology Pattaya staff and work providers' staff prior to the next cycle to define and agree the teaching strategy and content for the school and workplace programmes. We need to collaborate with our industry partners to promote and develop training packages to foster generic work skills for the future. Research by NCVER (2003) identifies the workplace as the most effective forum to learn these skills, and emphasises the need for employers to recognise their role in future learning.

A more comprehensive induction and orientation for the next group of students should also be considered to better prepare them for the work-based learning experience in cycle two. The training and initiation would take place on campus at the same time as the teachers' and work providers' induction. Special attention and focus will be given to work site regulations, codes of conduct at work and health and safety practice.

MacAllum et al., (2002) indicated the importance of good preparation and orientation programmes prior to the work-based experience.

The programme schedule must be reorganised. The work placement practical activities were too condensed and did not allow sufficient time for the contents to be properly taught and the instruction assimilated. Time expedients and the urgency and precision required at the work site did not allow for sufficient practise to perform the task right. The schedule did not permit a relaxed environment as they were allowed at school. They had to adapt and adjust to the real imperatives of working in a tight time frame with efficiency and accuracy.

The outcome from this reflection will be considered by the stakeholders at the next meeting to develop the strategy for cycle 2.

CHAPTER 6

SCHOOL-BASED PRACTICAL PROGRAMME FOR GROUP 2

6.1 Student views of work-based learning prior to practical activities

A focus group interview was conducted before commencing the school-based programme to elicit and discover students' views and perceptions of work-based learning. The main issue for the cohort was a previous experience of a badly conceived and poorly executed work experience. They voiced certain reservations about the validity and effectiveness of such programmes in Thailand today.

6.1.1 Reservations about work experience

The current Thai vocational curriculum decrees students spend a prescribed number of hours gaining work experience with a work provider. Unfortunately, through lack of co-ordination, commitment, and funding students have often found the experience de-motivating and unproductive in terms of assisting and enhancing their career choices and employability.

> My last experience was not good. There was no preparation, or induction. The work placement had no relevance to what I had been studying at school. The employer had not planned any activities for me, and I spent most of my time as a cleaner tidying up the offices. (S5, G2)

> The school and employer need to get together to work out a proper programme. Too often the employer gives the student boring jobs like office work, because they don't want us involved in their schedule. (S7, G2)

> This programme sounds o.k, as if it's been properly planned. Some of my friends have had bad experiences of work placement. The employers don't

receive any money from the government, so they won't spend time and money having one of their guys training you. (S9, G2)

6.1.2 Perceived benefits and key expectations

The cohort expressed the hope that the experience would advance and promote their chances of employment by giving them improved employability skills in the technical and personal context.

The cohort was generally enthusiastic and optimistic about the forthcoming programme. They expressed the view that the experience will increase their personal development and add to their knowledge-base through direct contact with the work site. They also believed it would focus their thoughts acutely on their future career development and their personal aspirations. They wanted the school and work site programmes to be properly linked in technical content and have mutual relevance.

> I hope I will be given the chance to work on my own to prove my capability. It will I think give me an idea of what career I want. (S1, G2)
>
> I will get the chance to practice in a real situation to help me get more knowledge. (S2, G2)
>
> I will have the chance to see many situations and I hope it will give me time to learn how to solve a problem, which I can't get at school. (S4, G2)
>
> I will get some ideas which will help me develop my future career and it will be good experience talking to the other workers at the work site. (S9, G2)
>
> I hope what we learn during the school period will be linked to the work site and that the job will be a proper one. I need to find out and experience what it takes to get a skilled job. (S10, G2)

I would like to learn more about air-conditioning systems, because my family have a plan to open a shop. (S4, G2)

It can help me to find out what job suits me, and what I am good at. (S5, G2)

I know I need to improve my self-discipline. I hope the experience will help me. (S7, G2)

I hope it will give me the confidence I lack at the moment through inexperience. (S10, G2)

I think being at the work site makes you more responsible. You have to grow up quick. (S4, G2)

6.1.3 Reflection

The reputation and historical legacy of work-based learning schemes in Thailand is not promising, and for many students has resulted in disillusionment. There has been no major government financial initiative to motivate industry to co-operate with schools, and the schemes operated to date have been ineffective and inappropriate.

However, once the work-based learning programme had been properly explained and presented the focus group views expressed were positive and pragmatic. The principal concern expressed was that the school and work placement portions of the programme be connected and complementary and carefully integrated.

A key observation was that they anticipated the real value of the programme to be experiencing the manners and ethics of the working environment and the skills they need to acquire in terms of social interface with the working community.

The students presented as enthusiastic and optimistic. They showed motivation, and expressed positive, and constructive outcomes in the future for the programme. As a

group they were more hopeful in attitude compared to group 1. They did not see confidence as a major issue, and were of the opinion that confidence would grow with competency on the job.

6.2 School-based practical programme

Analysis of the practical experience

6.2.1 Context

The second cohort of ten electrical students spent one month at school attending a specially designed programme to prepare them for the work site placements. The content of the programme was agreed by the stakeholders and worked out by the school and industry partners and incorporated the changes recommended by the school committee as a result of cycle 1.

The main features of the revised programme were:

- The technical content of the programme was to be restricted to three areas of instruction to ensure each subject was more comprehensively covered:

    1. Electrical wiring installation

    2. Cable television technology

    3. Air-conditioning and refrigeration systems

- The practical content taught at school should to be relevant and appropriate preparation for the work site placements.

- The provision of additional teaching staff to encourage increased learning and instructional support at school.

- Special focus on codes of conduct at work and health and safety regulations.

- All instruction to take place in a designated workshop facility on campus to represent and facilitate an appropriate work-based learning environment in school.

- A more intensive induction programme for school and work providers' staff and students.

The cohort attended the programme in addition to their regular course schedule.

a. Introduction to programme

The school principal outlined the programme and explained that the workshop format had been chosen to create and simulate as closely as possible the working environment. The four weeks on campus was to focus on preparing the cohort for the work placement experience.

There would be a theoretical content to lay the foundation for the practical activities, and all school-based instruction would take place in the school workshop. The rules and regulations of the work site and code of conduct would be observed closely as a discipline and preparation for the future work placements.

- Community service
  A week of community service was also included off-campus and the cohort was attached to state schools in the vicinity to install and repair various electrical components and fittings.

- Guest speakers
  Representatives from Banglamung Electric Authority. and Sophon Cable Television Company gave talks on their companies codes of conduct and regulations.

- A Field trip
  A visit to Pattaya's major hotel and leisure complex to experience job-shadowing with company employees and the running of the electrical department.

- On-the-job training
  The cohort joined Sophon Cable Television Company to learn cable laying techniques, and customer servicing.

b. Orientation and induction

Prior to beginning the workshop practical activities on campus a three-day induction seminar was held at the school, for industry partners, the school staff, outside consultants, and the student cohort.

The strategy was to make the school-based component the preparatory foundation for the work placement experience. The work providers and the school staff agreed the content of the school and work site programmes, and discussed the teaching duties of school mentors and work providers when at the workplace.

The workshop model was intended to replicate in learning content what would be experienced at the work site, and was devised as purely preparation for the work placements.

The cohort took part in a two day course run by outside specialist consultants, as a preparation to the school-based and work-based activities. The consultants have long experience and expertise in running motivational programmes for schools and employers. The focus was to get the cohort prepared, motivated and committed to the forthcoming programme. The induction was designed to encourage and nurture the following qualities:

- Positive and open-minded attitudes

- Team spirit

- Creative and lateral thinking skills

- Motivation and self-belief

- Flexibility and adaptability

- An appreciation and respect for workplace codes of conduct and health and safety rules and conventions.

c. Day 1 School staff and work provider workshop

Staff of Aksorn School of Technology Pattaya and work providers assembled to review and construct the syllabus for the forthcoming programme. The day was designed to formulate an understanding of the instruction methods and characteristics and nature of the students to reinforce programme development.

It was agreed to reduce the range of subjects taught, in line with the stakeholders' recommendations to enable the cohort to cover each subject in more depth. Furthermore it was felt that the school-based practical period should lay the foundations to prepare the cohort for the work placement. The workshop format would reflect as effectively as possible the conditions and culture of the workplace.

The work providers stressed the importance of teaching 'soft skills' and repeatedly commented that this was an area of significant importance for schools. The students should be given a basic training in technical competency at school, which the work provider can develop and refine to the needs of its own organisation. The teaching of generic and interpersonal skills should be the responsibility of schools at an early stage during the course so that the student is better prepared for the working environment.

The stakeholders had asked that the supervision of students be especially rigorous in cycle 2 concerning their code of conduct and health and safety during the entire school and work-based locations in light of the deficiencies in cycle 1.

It was agreed to make codes of conduct and health and safety instruction the overriding focus of learning in cycle 2.

d. Day 2 Student motivation and adaptability

The morning session was devised around ice-breaking exercises to get the cohort to relax, feel comfortable, and enjoy a non-threatening environment. They were split into teams for some of the activities and then into pairs. The idea was to get full participation and reaction from all members of the cohort. The mix and pace of the activities kept attention levels, interest, and commitment high. The students bonded well together and showed no sign of reticence or inhibition. They presented as competitive and involved, and eager to give a good account of themselves.

In the afternoon the activities combined team games, pair work, and individual performances. The momentum was maintained by ensuring the involvement was fun, light-hearted, and not too long.

It was significant to observe that in the team games and pair-work a leader and instigator would emerge through a process of natural selection. Instructors from the work providers sat in on some of the sessions and observed the cohort activities to get an appreciation of their capabilities and attitudes.

e. Day 3 Employability skills activities

The day focused on building communication skills and confidence levels by encouraging solo performances on a voluntary basis. Teams were asked to select a spokesperson to give a short appraisal of the activity just completed.

Another exercise involved each of the cohort picking an object out of a box in the style of a 'lucky dip'. They then had to give a two minutes presentation on the practical uses of the object picked. For many of the group it was their first experience of public speaking, without preparation, and was an important experience to demonstrate resourcefulness and creativity.

In the afternoon session there was a mix of activities combining manual dexterity and lateral thinking skills. Many problems in various situations were simulated. It was seen that the group on an individual basis possessed a wide range of differing abilities, but when working as a team or in pairs the collective skills were diffused to produce a more level standard.

The day concluded with the work placement providers giving a talk on their individual businesses. Special attention was paid to the codes of conduct and safety measures and procedures at their respective companies. The cohort was given written handouts of the policies and rules observed by both providers.

6.2.4 Reflection

The revised induction programme for teaching staff and work providers appeared to produce a more cohesive and collaborative framework to formulate the revisions to the school and workplace programmes.

The experiences of the first cycle had been an important learning curve for both parties. The increased teaching and mentoring support provided by the school aimed to rectify the problems encountered earlier, and improve the learning and training facilities.

The workshop for school and work providers' staff demonstrated the importance of close co-operation and a positive attitude to ensure the development of a well-

integrated programme. It was important that all teachers and instructors impart a uniform programme.

The outcomes and concerns from the first cycle indicated the health and safety issue was one, which needed addressing with urgency. It was imperative to make this a priority discipline at the workshop and the workplace throughout the three months programme. Both work placement providers agreed to make it the focal point of learning in their training, and to enforce the safety codes with rigour during the practical activities at the work site.

Over the two days the students showed positive commitment and enthusiasm. The mix of activities kept their attention and morale high. As a group they interacted well and the team exercises showed competitive spirit and an appetite for the challenge. The combination of fun-type activities in teams and pairs produced constructive bonding and unity. The variety of games, skills of dexterity, and exercises to promote lateral thinking were an effective compendium to keep their energy and attention levels high throughout the two days.

6.3 Week 1

a. Electrical installation

The practical activities were kept to the basic principles, in wiring and circuitry applications. At each session there were at least two instructors and two mentors to assist and guide the students giving them significant teaching support.

The workshop format enabled the students to concentrate exclusively on developing their manual skills and gaining knowledge of the component parts of circuits and capacitors. The major part of the week involved working in pairs and trios, putting in the circuitry for rooms in a house, such as, a kitchen, a bedroom, and a living room.

Theoretical instruction was kept to a minimum, apart from the initial briefing, and demonstration of the equipment to be used. Each team was briefed at the start of the lesson on the task for the day and then worked on their wiring project under the supervision of an instructor.

At the start of the week it was evident that the majority of students needed practice in manual dexterity, although they were conversant with the technology. However, as the week progressed it was apparent that individual and teamwork skills were improving and the students were becoming more familiar and more adroit in the technical aspects and more comfortable with each other working in teams and pairs.

It was seen that in the first week attendance levels and timekeeping were very good, and the instructors and mentors reported high commitment and motivation.

b. Guest speaker

The chief engineer from Banglamung Electric Authority gave a talk on his company, and stressed the importance of getting work experience to get to know the culture and ethics of the work environment. The importance of observing the codes of conduct and health and safety regulations at the work site, was emphasised, together with the necessity to make health and safety and codes of conduct the first and foremost work site disciplines to be learned. The safety theme was expanded by explaining the company's training philosophy for new recruits, and the induction process for new employees:

- Company introduction - This would be conducted at the company training centre, and encompass an introduction to the business to offer an understanding of each job function and how each separate section contributed to the whole organisation;

- Job and role requirements or expectations - Trainees were told what would be expected of them with respect to performance and behaviour, and what they could expect from the company and their supervisor;

- Health and safety - Formal training and instruction is given for the first two weeks, and considered the foremost work site discipline.

At Banglamung Electric Authority they are determined to adopt a 'safety culture' which manifests six distinguishable elements:

- Work environment: 'good housekeeping' and keeping the working space clean and tidy promotes a disciplined approach to the job.

- Training: staff were always given jobs commensurate with their abilities. Supervisors would only allocate tasks to trainees once their competence level had been assessed.

- Teamworking: trainees were encouraged to feel part of the team, and treated the same as other employees.

- Awareness: staff should be aware of health and safety policy and general risk issues to be able to anticipate possible hazardous situations.

- Good supervision: the key to effective and properly trained staff.

- Accident reporting: the company keeps a careful record of each incident to monitor causes and hopefully as a result reduce future occurrences.

The chief engineer concluded his talk by restating the importance of induction, and training, and stressed the vital role that codes of conduct and safety play in the company ethos. Banglamung Electric Authority has a well-defined training policy, which has been developed to produce an employee with the attributes and technical skills to meet the company's future requirements.

6.3.2 Changed learning environment

The workshop setting provided a relaxed and informal atmosphere, in contrast to the more structured and stilted classroom instruction medium. In the workshop the teaching focus was to encourage the students to work in small groups and after initial explanation and demonstration of the task get the students to direct their own learning within their group, by helping each other with the task.

The instructor would initially teach the theory of a circuit design by a graphic drawing, and then the students would split into groups to practise fixing the cable to the wall. They were encouraged to work unaided, but each group had an instructor to assist them, as necessary.

It was noticeable that the relationship between the instructors and the students was more that of working colleagues than teacher: student. Most of the cohort presented as enthusiastic and eager to learn, and interacted with the teaching staff. As a group they related well to each other and paid careful attention to the instruction.

6.3.3 Confidence and maturity

It was seen the students had an open mind and a receptive attitude to the programme. If the group had difficulties understanding instructions, they were quick to ask for clarification so that they could continue with their task. They showed little inhibition and having an instructor close by made it easy for them to get advice if they were in doubt.

Working in teams fostered and developed a sense of accountability and responsibility. Each team strived to give a good account of itself. The first week showed good time-keeping and the cohort were keen to give a good impression.

6.4 Weeks 2 & 3

a. Refrigeration and air-conditioning.

The first part of the week was devoted to familiarisation of the components that make up the basic system. At the workshop, the cohort was able to examine the parts and the instructor would then demonstrate how each part fitted into the system.

Special emphasis was put on improving manual skills and hand-eye co-ordination. One exercise involved welding techniques, where the students had to construct an evaporator coil. The seal integrity of the coil was then tested for leaks by immersion in water.

The remaining time was allocated to the installation of an air-conditioning system in various situations (office, bedroom, living room). The cohort was split into four groups. The mentors played an important role during the assembly process, moving from group to group, giving encouragement and advice and practical assistance as required.

It was apparent that the increase in teaching support had a positive effect. Each group of three students or pairs was able to consult and seek guidance from their teacher. The atmosphere was relaxed and collaborative and the interaction between instructor and student friendly and constructive.

There were some attendance and timekeeping problems, which resulted in instructors having to re-schedule some lessons. Some of the cohort had outside job commitments which they found they could not re-schedule.

6.4.1 Changed learning environment

The emphasis on learning in teams and each team having responsibility for its own allocated task has helped the cohort direct their own learning. The instructors were

seen to adopt the role of facilitators, and encouraged the students to work out solutions when possible for themselves.

This shift in teaching style was seen to produce much greater synergy between the students individually and greater collaboration between each team and its instructor. It was also a strategy for helping the less able students learn from their more able peers.

Working in teams on a task meant the instructors could overcome bad timekeeping and absenteeism by making the assignment a team effort and the students would work on their assignment until completed.

6.5 Week 4

a. Cable Television installation

The instructors and supervisor from Sophon Cable Television Company gave a practical induction course over three days at the school and on-the-job training at their customer's premises.

On the first day at school the cohort were given the background and structure of cable television in Thailand, and told how the economics of the technology restrict the growth of cable to the larger conurbations like Bangkok, Chiang Mai, and Pattaya. The chief engineer from the company gave the cohort a graphical theoretical account of the principles on the board, and then demonstrated each of the component parts individually. Students were able to see the system made up from the outside cable link to the television receiver in the room. They were able to examine each stage of the transmission process and test the components (Receiver, Modulator, Amplifier, and Splitter).

The chief engineer explained that the components can be tested to ensure the signal strength is appropriate, and he demonstrated the method for doing the test.

6.5.1 On-the-job training

The cohort then spent two days at customer locations for on-the-job training. The health and safety aspects of the tasks they would perform were covered comprehensively. The safety belt, and the strap which must be attached to it was demonstrated and then practised by each student until the chief engineer was satisfied they could secure it properly.

They then practised ascending a ladder, against a concrete stanchion, from which the cable is suspended (Thailand unlike many Western countries mostly lays power supply lines from overhead stanchions). The safety strap is then attached to the stanchion, so that in case of a mistake the operative cannot fall from the ladder. Each member of the cohort was tested on his competence with the safety procedure. Hard hats were worn by everyone.

Laying the cable is an exercise which calls for manual dexterity, experience, and strength. The stanchions are positioned some one hundred metres apart and the cable is secured at each stanchion by a metal bolt. The cable has to be pulled taut by the person on the ladder, and then secured.

Sophon Cable Television Company had four staff in attendance, in addition to the chief engineer, who was the principal instructor. The standard of instruction was high and the cohort responded with enthusiasm and commitment. The rules of health and safety were properly observed and for many of the cohort working at heights was a first time test of their aptitude for this work.

The students were split into three groups, one group at each stanchion. Each group was responsible for laying the cable to their stanchion, under the supervision of a member of staff from Sophon Cable Television Company.

Some students had problems in terms of physical strength to secure the cable to the stanchion and needed assistance from their colleagues. Others were apprehensive about working on ladders at heights. (S4, S6, G2)

The final day was spent at customers' premises making the connection from the outside cable to the receiver in the house or office. The key elements in the job task are to ensure all cable connections are secure and that there is adequate signal strength coming to the receiver.

The cohort had considerable customer contact and was able to observe the Sophon staff dealing with a range of questions, complaints, and account enquiries. As the installation and maintenance crew from Sophon are the main point of contact with the customers, the communication skills and product knowledge levels need to be of a high standard to be able to satisfy customer demands.

6.5.2 Changed learning environment

On-the-job training was an innovation for the school and was introduced in response to difficulties experienced by the first cohort at Sophon Cable Television Company during the secondment. It was necessary to improve the quality of teaching and general communication standards, and make sure the cohort had the appropriate instructions for the health and safety regulations.

On-the-job training was the most effective way of ensuring the cohort received the correct instruction in cable television installation and maintenance. It was impractical to undertake this training at school, when Sophon Cable Television Company was able to offer expert training in authentic and real circumstances.

The three-day induction, on-the-job training, and the practical instruction away from the school environment produced some very positive student learning outcomes:

It's given me confidence. I have a better understanding of the technology. I understand the basics and what the job is about. (S3, G2)

The instructor was clear and gave us plenty of time to learn. The work at heights putting in new cable is not easy, and you need to know the safety equipment. (S5, G2)

Training at the customer's premises was great experience, and I learned a lot just watching the Sophon employees. (S7, G2)

6.5.3 Field trip

The cohort visited the premier resort complex in Pattaya, which features two hotels, and an exhibition centre. The purpose of the visit was to witness the workings of electrical and refrigeration systems on a large scale and to experience job-shadowing with company employees in the authentic working environment of a major organisation. They were accompanied by school teaching staff and mentors who were able to assist the employees in the job-shadowing stage, if difficulties in communication arose.

The students were divided into five groups, and each pair of students was assigned a company employee. The jobs they observed were very varied from repairing individual air-conditioning units to re-wiring a bedroom suite. The cohort showed great interest and was clearly absorbed in their activities.

Students were taken on a tour of the relevant departments by the chief electrical engineer of the complex, where they saw the electrical control centre from which all the lighting circuits are monitored and controlled, and from which the fire alarm systems are operated. They were shown the generator plant, which can be used as a back up in times of power supply shortages, and finally the air-conditioning control system, and chiller room which provides the cooling system for the complex.

The chief engineer pointed out that in today's computer-controlled era the plants can be controlled by one operator, but the complex has a large staff to maintain and repair the appliances in the one thousand-room enterprise. The experience clearly was of great interest to the cohort and they were attentive and engaged in a constructive question and answer session with their guide.

> In the workshop we have learned about the principles and components on a small scale. Seeing the same components on such a large scale was very interesting, and at first difficult to take in until it was explained. (S5, G2)

> Having done the basic ground work and technology at the workshop, it was incredible to see the operation on such a large scale. (S7, G2)

> The trip was good, because it made me understand, no matter how big the installation the fundamental components don't change. (S9, G2)

> It was interesting to see how a vast complex can be run with so few staff, using computer technology. (S10, G2)

> It has broadened my vision to understand how a large organisation operates. (S8, G2)

6.5.6 Community service

The cohort spent a week at local government schools where they experienced a varied mix of electrical applications. Working in pairs and trios the job content varied from day to day. One day involved installing a new telephone line and repairing wiring, the next day focused on servicing air-conditioning systems and installing public address speakers and electric fans. A school instructor and a mentor supervised the activities.

The experience was valuable as it replicated all the disciplines of the work site, including customer contact and quality control procedures. The students worked

mostly with minimum supervision. The technical expertise needed for the applications had been adequately covered in the school workshop. Some problems were encountered servicing air-conditioning units, and they had to seek guidance from the instructor and mentor to explain the techniques.

Working in pairs was seen to be good experience as the students were able to encourage and help each other with the tasks. Their morale and attitude was positive, and they showed resolve and determination to perform to a high standard.

One job detail, however, was seen to be difficult for some of the cohort. The job required an outside electricity cable to be laid from concrete stanchions. Students were carefully briefed on the safety procedures and the use of the safety equipment. The instructor demonstrated the use of the special spiked footwear which facilitates the ascent and descent of the stanchion by placing each spike in the aperture in the stanchion to secure the foothold. He then showed how the safety belt and harness is used to secure the operative to the stanchion.

Some of the cohort was reluctant to attempt this exercise as it requires climbing strength and a capacity for working at heights. In the interests of safety only three pairs took part in this exercise.

> In the community service activities, I found some tasks were difficult and I had to get help from the teacher and my friends. But it was a good opportunity to learn the various jobs no matter how difficult. (S8, G2)

> It felt like the real thing. It also felt good doing a real job for the community. (S10, G2)

> The week of community service was great experience. It got us out into the real world and you were doing a useful job, not just practising. (S6, G2)

6.5.5 Student assessment of the practical experience

Each one of the cohort kept a journal in which they recorded their feelings, achievements, and failings during the school-based preparation, and a taped interview was conducted on an individual basis.

6.5.6 Student development

The workshop format has given the cohort an improved environment in which to acquire work skills and attitudes to learning. They also believe it has given them a changed perception of teachers.

> It's much better. You get individual attention from the teacher. You learn a lot faster. (S3, G2)

> The workshop has been a great motivator. You are involved doing something, not like in class, just listening not involved. We had plenty of time to practise manual skills, which gave me confidence, and we had time to learn at our own pace, which was good. (S4, G2)

> It has made me realise I can learn on my own. It's up to me. (S7, G2)

> Sometimes, at the start of the programme I didn't understand the job detail, and I got help from the others in my team. Other times I got help from the instructor. (S6, G2)

> I learned a lot from the others in the group, not just the teachers.
> It's given me a more positive attitude to work and school. (S9, G2)

a. Collaboration

The experience was seen to have fostered a shift in perception towards the student's role in the learning process and the role of teachers and mentors. The cohort generally considered their relationship with teachers had become more collaborative and equitable.

They had held the view prior to the programme that theirs was a passive role and the role of the teacher was the dominant one with limited pro-action on the part of the student. The workshop activity had produced an egalitarian, collaborative environment, where the teaching staff were seen as facilitators and mentors, and the relationship had become more of a partnership with a common goal in view, to help the student acquire the appropriate skills for working life.

> The atmosphere and environment was very different to normal classes. The teachers had a good attitude and were more like colleagues. (S1, G2)

> Working in groups of three we had one teacher for each group. I found learning so much easier and quicker. If you had a problem you could often ask one of the group to help you. (S2, G2)

> When you have so much teacher support it's much easier to get answers to problems, and be shown what to do. (S8, G2)

> It was a great 'practice ground' and gave you some good experience to work in a relaxed atmosphere. I learned a lot. (S10, G2)

b. Course content

The students felt that by concentrating on just three key areas the learning process had been enabled as it allowed sufficient time to learn and practice the subjects in depth. They considered the time allocated for each portion of the course to be sufficient and

that extending the refrigeration and air-conditioning period to two weeks had covered the subject matter in greater detail as planned. The amount of time devoted to the handling and appreciation of the equipment was of special importance.

The-on-the-job training experience with Sophon Cable Television Company was of particular benefit to the cohort.

> I was very glad to get the instruction on cable television on site.
> It was very valuable preparation and very clear instruction. (S8, G2)

> I had a problem with working at heights, but I enjoyed the technology, and the teacher was easy to understand. (S2, G2)

> On the job training gives you a taste of the real world. It was good experience, and has given me confidence for the work placement. (S9, G2)

> Getting out of the classroom into the work environment was a big motivator for me. (S10, G2)

> It was very important for me to be able to practise with the tools and get experience with my hands. You can only acquire know-how with time spent on the job. (S1, G2)

> The teaching style has been good. But it wouldn't work with large numbers. (S4, G2)

> Refrigeration is what I hope to work in, and the course has provided good in-depth coverage for a complex subject. (S10, G2)

> The practical experience of the week outside in community service was great for me, as it was so mixed in activities, and you had the opportunity to work on your own. (S6, G2)

6.5.7 Teacher and mentor assessment of the practical activities

The consensus indicated that the workshop format had given the cohort a solid foundation in working knowledge and skill level for the work placement experience. The reduction in curriculum content had enabled the instruction team to cover the subjects in-depth and in an environment as close to the real world of work as possible.

It was evident that within the group a wide gap of capabilities and aptitudes existed. In general half the group was able to work on their own with minimum supervision from the instructor, while the other half needed careful direction and guidance from the mentors and instructors.

It was significant that the more capable students took notes and prepared well for each session, and had regard for the proper care and husbandry of tools and equipment.

The workshop format centred on teams made up of students of various abilities and it was seen that the more capable and organised in the team did the work and directed the learning for the team. It was evident that some of the less able and less well organised of the cohort made only a minor contribution to the team effort.

The change in teaching methods and medium for instruction had produced both positive,and limited outcomes. The salient and significant developments were:

a. Positive outcomes

- The students had access to, and hands-on experience of, working with the authentic materials and components they would work with in the workplace.

- The increased mentoring and teaching support gave each student more individual learning opportunities.

- The less formal and pro-active learning forum by moving from the classroom to

the workshop enabled some students to direct their own learning at their own pace.

- The team approach to learning encourages good communication, and leadership skills.

b. Limitations

- The workshop informality and style is less conducive to students who require constant monitoring and direction.

- The freedom to direct their own learning is not appropriate for all students.

- The range of abilities in the group is an issue for instructors.

6.6 Reflection

Student reaction seems to indicate that there is a shift in their perceptions of the teaching and learning roles as a result of the programme. The notion that the students see the respective roles as a partnership working towards a common goal is a significant change in attitude.

The teaching staff adopted the role of facilitators, which has helped remove to some extent the passive attitude the students manifested in the past. The student and teacher roles have become more collaborative and pro-active and the students have presented as more confident and assertive.

The reduction in the programme content and the workshop format has given the cohort a more practical in-depth experience in key areas prior to work placement. The increase in the teaching and mentoring presence has enabled the cohort to receive more individual attention and guidance.

Using the workshop as a medium to replicate a working environment has provided the cohort with valuable teamwork experience and introduced them to directing their own learning, and to take more responsibility for their own actions.

However, it is apparent that self-directed learning is not appropriate for all students (Smith, Wakefield and Robertson 2002) as there was some poor attendance by some students, who took advantage of the less dictatorial regime. Nevertheless, it has provided an appropriate and effective preparatory platform for workplace transition.

The week of community service provided the cohort with a wide range of diverse tasks, and test of skills. The main weakness in the division of labour was the most able and proficient students were able to perform more tasks and get more day to day hands-on experience than their less able peers.

We need to consider in the future the composition of the cohort and perhaps select students with similar abilities, because the teacher and mentor assessments raise a fundamental question. In programmes of this nature, should the abilities, attitudes and aptitudes of the cohort be carefully vetted before inclusion on the course.

The disparate level of ability, attitude, and motivation would indicate a more rigourous vetting procedure be applied in future programmes to achieve a more uniform standard of student in the cohort.

The use of community service as a device to get practical hands-on experience in a real situation was particularly effective as the cohort felt they were doing a worthwhile job and making a contribution to the community. Moreover, it was an effective bridge to the work placement programme.

The issue of health and safety in the workplace had been a significant factor in planning the cycle 2 programme. We arranged for a professional manager from one of the work providers to give an authoritative industry view of the importance of this training and discipline. It is planned to have rigourous checks on safety precautions,

throughout the work placement period, to ensure the cohort has the appropriate supervision and protection.

CHAPTER 7

WORK PLACEMENT PROGRAMME ARRANGEMENTS AND FORMAT FOR GROUP 2

7.1. Context

As a consequence of the outcomes and experiences of the first cohort, the stakeholders made the following changes to the programme in consultation with the work providers:

- Reduction in the breadth of technical content taught to provide more in-depth training across fewer subjects.

- Increase the learning time at each location to give the cohort more hands-on experience, and in-depth instruction, by reducing the number of work placements.

- Ensure that the work placement technical content is complementary to the school-based component.

- Increase the mentoring presence at the workplace to provide more learning support to the cohort and the work provider.

- Focus very clearly on the codes of conduct at work.

The Banglamung Electric Authority and Sophon Cable Television company were the two work placement providers. A and Air Service (a contractor of Banglamung Electric Authority) also provided work placement for the cohort.

The school committee formulated an appropriate action plan to meet the changes to be

implemented in the work placement experience. The areas of specific importance for development were:

- To encourage students to take the initiative and become more responsible for their own actions.

- To improve student interaction with, and, respect for others, in the working community.

- To develop the technical and employability skills necessary for the workplace.

- Gain a better understanding of the workplace culture, codes of conduct, safety standards, and how to make a contribution.

- Have a greater insight for, and appreciation of, their career prospects and aptitudes.

The eight weeks programme was designed to focus on:

- Electrical wiring and circuits

- Air-conditioning and refrigeration

- Cable television networks

7.2 Orientation and induction

A three-day workshop and initiation to the workplace was held on campus for all the participants in the forthcoming work placements.

The stakeholders wanted to ensure that the school teaching staff and work providers' instructors co-ordinate and correlate what had been learned during the school-based

preparation and link the curriculum to the work placement component so that the school-based and work placement elements had relevance were integrated and complementary.

The students attended a two-day workshop and seminar to prepare them for the work placements.

7.2.1 Day 1 Teaching priorities

School teaching staff and instructors from the work providers met to consider an appropriate teaching strategy and curriculum for the work placements.

The school programme co-ordinator reviewed what had been covered during the school-based workshop preparation. He indicated that the workshop format had allowed more in-depth coverage of the technical content to be learned and that the increase in teaching and mentoring resources had produced better learning opportunities.

There were, however, problems of discipline and attendance identified during the school-based preparation, which needed to be resolved prior to work placement. Some students lack self-discipline and motivation and need careful supervision.

It was agreed that the school and work provider should adopt appropriate measures to supervise and control the students. It was thought that the presence of additional mentors from school would assist with the supervision, and control.

The work providers shared the opinion that teaching the technical skills necessary for the job, though important, was not as vital as teaching students generic or ‘soft skills’. They reasoned that technical competence could be learned on the job. The real challenge to vocational schools was teaching ‘soft skills’, which the employers find are in short supply.

It was agreed to make generic skills development and work standards the primary focus for the placements.

7.2.2 Day 2 Student attributes for the workplace

The day focused on introducing the students to the work placement programme, and sought to put them in the right mindset for the experience.

The morning session was aimed at 'ice-breaking' exercises to get them to relax. Among the exercises were solo performances to encourage individuality and freedom of expression, and group exercises to foster teamwork and team spirit.

The afternoon activities were designed to get the cohort to be open-minded, adaptable, and receptive to change. Above all, it was important to get the students to understand they must be prepared to adapt and change their thinking to meet the demands of the workplace.

7.2.3 Day 3 Workplace lore

In the morning the chief engineer of Banglamung Electric Authority gave the cohort a comprehensive talk on how to conduct themselves at work and the rules and regulations of the workplace and to make a commitment in the following areas:

- Workplace manners, etiquette, and decorum.

- Workplace discipline.

- Workplace regulations, organisation, and codes of conduct.

The company was careful to point out that working in a potentially hazardous environment means observing the appropriate safety measures. The students were reminded to pay attention to the company's protective safeguards, and rules of

conduct, such as timekeeping, and personal appearance. The students were told that their conduct and health and safety practice in the workplace was the most important lesson they would take away from the work placement.

The afternoon session was conducted by Sophon Cable Television Company who gave a practical demonstration of safety procedures using a stanchion on campus. The instructor went through the safety equipment many times, and then asked each of the cohort to repeat the demonstration.

The drill was practised until the cohort was adept in, and familiar with the procedures. The instructor then demonstrated the technique for climbing the stanchion, using the harness, and safety belt.

7.3 The placement experience

7.3.1 Week 1

Banglamung Electric Authority (A and Air Service)

One group of students spent the week re-wiring a private house, which was under-going complete renovation. They worked in pairs initially under the control of the supervisor and a mentor. They started on simple tasks, and the focus was to improve the dexterity and accuracy of the implementation.

The supervisor allowed each pair sufficient time to fulfil the task, and stressed the importance of accuracy and neatness in the work at this stage rather than speed to complete the job.

Another group was seconded to a shop requiring a complete refitting. The initial job was to replace the wiring and the circuitry, in preparation to installing refrigeration

units and air-conditioning. This group was paired off with employees of the company, and each student worked under the guidance of the company employee and school mentor. A company supervisor was in overall charge of the task and made frequent visits to the site to check the progress and quality control.

Initially the cohort was required to observe the tasks performed by an experienced employee of the company and their role was to job-shadow. After some reticence and reserve the cohort appeared to adapt to their new environment and were able to assimilate and respond to the working conditions. As the week progressed they grew in confidence and interacted with more assurance with the company employees. The mentor played a pivotal role assisting the work provider with the guidance and supervision of the cohort.

7.3.2 Week 2

The students swapped locations, and the group in the private house went to the shop, and the group in the shop, to the house. The technical focus for both groups was electrical wiring applications, and circuit capacities, and the installation of air-conditioning systems.

The technical aspects in the second week were more demanding, and the cohort needed more guidance and instruction from the mentors, and the employers' staff. The cohort was encouraged to execute each task as a team, and only hand over the application to the instructor when the technical implementation was beyond their scope.

The focus for the week was to develop teamwork skills working with the other employees and to encourage the students to work out and discover solutions to problems through practical experience. As the week progressed at both locations it was seen that the nature of the tasks needed constant and repetitive implementation to produce improved skill levels. With improved skill levels and familiarisation in the job detail some of the students presented as more assured and confident.

The mentors again provided crucial and essential direction in terms of giving moral support and guidance when needed.

7.3.3 Weeks 3 & 4

The fortnight remaining was devoted to all aspects of installation and maintenance and repairs of air-conditioning systems. The cohort was split into pairs and each pair assigned a company employee as a partner to work with, and then directed to multiple client locations. Each location presented an air-conditioning job to be undertaken.

The variety and range of tasks was comprehensive and included repairs and maintenance and new installations. The cohort needed careful guidance and supervision as they were exposed to some new techniques and equipment which was new to them. For some tasks they were required to observe as the nature of the job was too complex.

It was seen that some students were able to perform with minimum guidance, whilst others sought advice and needed mentor encouragement and approbation to give them confidence. The two weeks provided the cohort with a diverse range of job applications and challenged them to try and seek solutions to problems, using their own initiative.

Personal development

The four weeks with A and Air Service (Banglamung Electric Authority) afforded the cohort a wide range of skills experience in diverse, and varied circumstances. The level of skill required for each task performed was progressively built up over the period, which provided the time for the students to gain the competence and confidence to hone and master each application presented.

The principal advances in development were seen in team-working skills, effective communication with their co-workers, and the foundations to be able to work and think independently.

It was also apparent that most adopted a mature and responsible attitude to the training and were motivated by the experience, whilst a minority needed a lot of supervision and guidance, and support.

> I would have liked the work provider to have arranged more tasks for me to work away from the group. When you are together with your friends it's difficult to pay attention and concentrate. (S2, G2)
>
> I found sometimes working with new colleagues who are not my friends very difficult but I had to adapt to fit in with the team, and I know this is very important in the working community. (S10, G2)
>
> It was great experience working with A and Air employees. I felt I was accepted and was not inhibited by the work site. (S1, G2)
>
> We were given the opportunity to work on our own and show we had the ability to be trusted. This was very important for my confidence and self-esteem. (S4, G2)
>
> The four weeks made me learn quickly, and I was able to add to my know-how. (S5, G2)
>
> I learned to be careful with the equipment, and tried to obey the company rules because I know it's important for me and the company's reputation. (S6, G2)
>
> The experience has helped me add to the knowledge I got from the school-based preparation. I learned there are many different methods to achieve the same objective in a task. (S8, G2)

> I learned many new things just by observing the other employees, and they were very helpful. Working in a new environment gave me a broader view of work. (S9, G2)

Technical content

The reduction in the schedule to three subjects provided more time for in-depth instruction and practise.

The content at the work site largely reflected, and was complementary to what they experienced at school, but it was seen that certain applications were different in technique.

The work site experience and the school-based preparation provided a foundation upon which to build and cement a knowledge base for the future. Over the four weeks the cohort experienced a very wide range of conditions and locations for refrigeration and air-conditioning applications, and was given instruction in wiring and air-conditioning procedures. The schedule allowed for a progressive build-up of technical proficiency, and the students were given tasks in ascending order of difficulty.

> We had a wide range of jobs to do ranging from simple tasks to quite technical and learned more about the systems in-depth and were given responsibility and trust. The technology was quite difficult but not beyond me. (S2, G2)

> We had lots of time to practise each task, which was good. If I had a problem, the mentor or supervisor always gave me time to show me how to do it. The support was good. (S3, G2)

> Some of the wiring applications were a bit repetitive, but you can only improve your standards with constant practice. The instructors and mentors

were helpful and gave you freedom to work on your own, with minimum supervision. (S4, G2)

I feel my technical know-how has improved a lot, but problem-solving skills can only improve with lots of practise and experience. It would be good to have a longer placement. (S6, G2)

There is a lot to learn in refrigeration. Some of the repair work was complicated and beyond our experience. (S7, G2)

I got a lot of help from the supervisor on the different types of equipment. My detailed knowledge of the specific parts was poor. The supervisor always reminded me to take special care of the tools, and learn the precise use for each one. (S8, G2)

Supervisor's report

The cohort was perceived to be well motivated, and tried to learn to adapt to their new environment. They were enthusiastic to work with the other employees, but sometimes lacked the confidence to be able to work individually without guidance and support. In matters of safety and work site conventions they adapted less well and had to be carefully monitored and supervised. They presented no major difficulties in risk management terms, but their overall awareness of work site safety and codes of behaviour is limited and needs to be improved.

The skill levels in the assigned tasks were very varied. It was apparent they had had some previous preparation, but their experience of the component parts is limited. In some cases the students were reluctant to ask for clarification if a procedure was not understood and this caused problems for the instructor, having to repeat and re-demonstrate the procedure. In other cases they had to be reminded how to handle the equipment and its overall care.

The work provider proposed in future programmes that during the school-based preparation period, instructors from the company can give more guidance to the school on the technical preparation of the students, and give more comprehensive grounding on the detail and variations of each task. There are some inconsistencies between how the school teaches the methodology of some technical applications and how the work site instructs the same applications. There are also areas of weakness in the use of tools and knowledge of component parts, which require to be corrected. Co-operation between the employer and school can overcome this problem.

There is a very wide difference in individual student ability both technically and in personal characteristics, which made the allocation of job tasks more difficult. Some students needed to be reminded to behave appropriately at the work site and pay attention to the job detail.

For this reason the support and co-operation from school mentors at the workplace was important and aided the learning process, as the students were familiar and comfortable with their individual mentors. The relationships between school staff and the company continues to grow and the mutual understanding that has developed has benefited the programme.

It was not always feasible to allocate the students with suitable tasks due to the nature of the work schedule. On some occasions dealing with ten students posed some problems. The nature of the work schedule varies from day to day, and sometimes they were not able to provide job allocations for all the cohort at customer locations. On these occasions some of the students worked in the repair and maintenance facility at the company's premises where they assisted and observed various repairs and maintenance work.

Teacher and supervisor assessment of student performance

During the school-based period the cohort was assessed on various performance criteria. School teaching staff made the assessments.

At the work placement location the supervisor from the work provider made a further assessment of the cohort performance at the work site, using the same performance criteria.

Figure 9 is a bar chart comparing the cohort performance between the school-based activities and the work placement activities.

The data were collected via an evaluation form for each student and distributed to teachers and work site supervisors. (see appendix C)

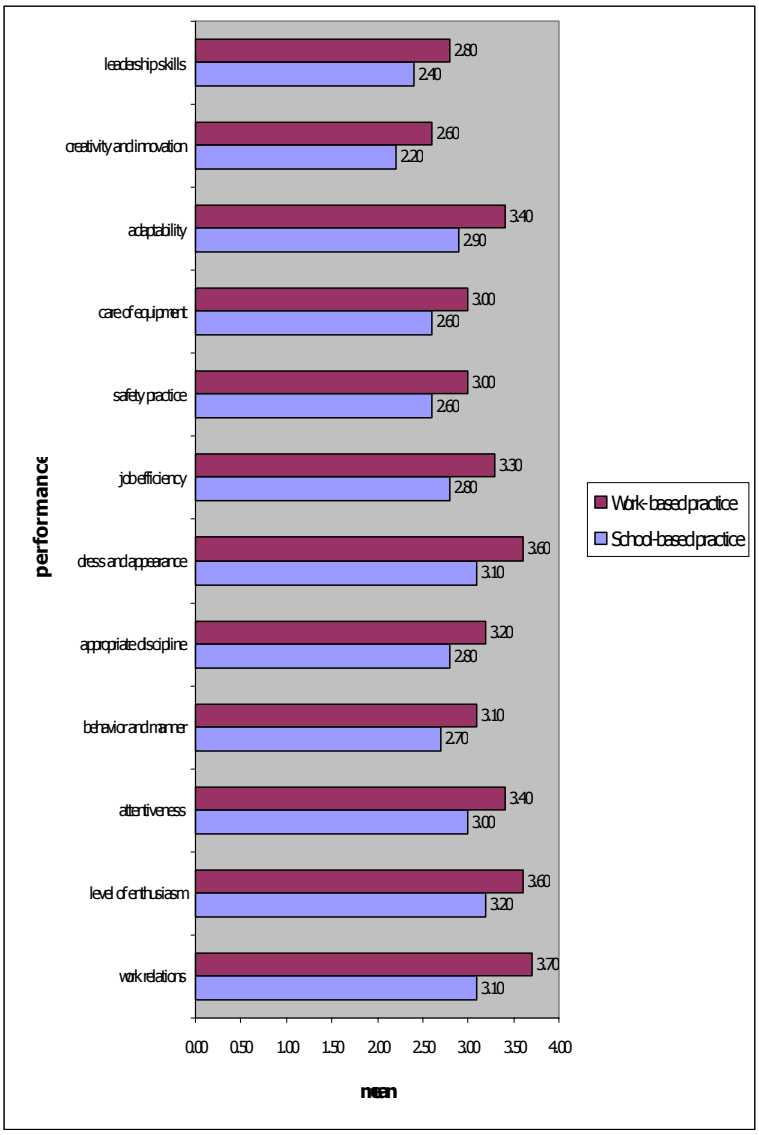


Figure 9 Means of student performance at school and Banglamung Electric Authority

The teacher and supervisor assessments show satisfactory performance levels across all criteria, and particularly during work-based practice.

The highest mean was ‘work relations’ and the lowest mean was ‘creativity and innovation’.

The paired sample statistic was conducted for the work-based learning programme students (n=10) to compare between school-based practice and work-based practice. Student performance criteria were reported.

$$H_0 : \mu_2 = \mu_1$$

$$H_1 : \mu_2 > \mu_1$$

μ_1 = means of school-based practice.

μ_2 = means of work-based practice.

Table 6 presents a comparison of twelve criteria between school-based practice and work-based practice at Banglamung Electric Authority

Performance criteria	n	Mean ($\overline{X}$)		SD		*t*	*p*
		school-based practice	work-based practice	School-based practice	work-based practice		
1. work Relations	10	3.10	3.70	0.57	0.67	2.714	0.0120
2. level of enthusiasm	10	3.20	3.60	0.42	0.52	2.449	0.0185
3. attentiveness	10	3.00	3.40	0.82	0.70	2.449	0.0185
4. behaviour and manner	10	2.70	3.10	0.82	0.74	2.449	0.0185
5. appropriate discipline	10	2.80	3.20	0.63	0.42	2.449	0.0185
6. dress and appearance	10	3.10	3.60	0.74	0.84	3.000	0.0075
7. job efficiency	10	2.80	3.30	0.79	0.95	3.000	0.0075
8. safety practice	10	2.60	3.00	0.52	0.67	2.449	0.0185
9. care of equipment	10	2.60	3.00	0.84	0.82	2.449	0.0185
10. adaptability	10	2.90	3.40	0.88	0.52	3.000	0.0075
11. creativity and innovation	10	2.20	2.60	0.63	0.70	2.449	0.0185
12. leadership skills	10	2.40	2.80	0.52	0.63	2.449	0.0185

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

The changes to the programme design and content would appear to have had a positive effect. The most marked improvement is better cohesion between the school-based preparation and the work site experience. However there are still gaps in the students' technical knowledge, which suggests a need for more co-operation, and consultation with the work providers to harmonise the instruction content between the school preparation period and the work placements.

The cohort indicated that what was learned at school had been an important foundation for the work placement. They had covered sufficient groundwork to enable them to perform at a satisfactory level at the work site.

The teacher and supervisor assessment indicates increased performance levels across all criteria. This suggests, as other data are indicating, that the school-based workshop instruction has provided a more effective learning experience, for work-based practice.

The other significant improvement was the quality of instruction, and the time allocated for learning. By reducing the subject content of the programme more time was available for learning in-depth. By installing a greater mentoring presence, the teaching quality was seen to improve, and the cohort experienced fewer difficulties in assimilating and learning the subject matter.

There was a problem on occasions providing sufficient job tasks for some of the students due to the work schedule. On some days the work provider had to send the students out in two groups which prevented individuals getting practical experience. On these occasions the students could only observe as a group. The nature of some tasks, because of their complexity dictated this action.

It was also apparent however, that some of the work site technical applications were unfamiliar to most of the cohort, and consideration should be given for further work

site exposure in future through day release schemes or on-the-job training two days per week. Teaching staff from the school can also be given training in technical procedures at the work providers' premises.

The students require an all round grounding in general technical skills such as welding and plastering to give them a wider range of abilities, and skills relevant to specific tasks.

The major impediment to the student performance is in 'soft skills', health and safety and the manner in which they conduct themselves at the work site. Furthermore, the teacher and supervisor assessments indicate that 'creativity and innovation' is a weak area, which needs improvement in future programmes. The issue of health and safety in cycle two had been partially addressed. The employer had ensured the cohort accede to the rules and regulations by strict supervision and monitoring. The cohort however still need to be more comprehensively instructed at school to achieve higher competency before joining a work placement.

It was evident that there is a variation in the level of individual student working skills. The school must consider the necessity of having a cohort with more equal abilities and make participants on future programmes attain a required standard.

7.3.4 Weeks 5 & 6

Sophon Cable Television Company

The placement was designed to give the students a broad view and develop the practical skills of the cable system. The main functions of the company are to expand the cable facility to make the service available to more people, and service existing customers.

The cohort spent four weeks with this company at customer locations and in the office dealing with customer inquiries, and customer sales. On the first day the supervisor

who is the chief engineer of the company gave a short welcoming talk reminding the students of what was expected of them during the placement. The company's rules and policy for conduct and behaviour appropriate in the workplace, was explained and the main work site standards and regulations applicable to the daily work schedule reviewed. Individual members of the cohort were asked to explain specific work standards to the group to ensure everyone had the basic knowledge and capability to perform safely, with competence, in the approved manner.

Eight students were individually assigned to an installation and maintenance crew of employees: one student per crew. Each crew of three or four persons was dispatched to various customer locations to perform new customer account installations, laying new cable, or carrying out maintenance and repairs.

Two students were assigned to the sales and servicing office for two days to help with the customer queries and learn the procedures for processing customer accounts, and handling customer enquiries. Over a two-week period each student experienced the sales and servicing office environment and procedures and customer interfaces.

At the customer locations the students engaged in the complete repertoire of cable television technology. The technical content and the procedures had been adequately covered during the on-the-job training at the school-based preparation and posed no significant problems for the cohort.

The main observation was the contrast in dexterity and speed with which the cohort worked compared to the regular employees, and it was seen as the time on the job increased so did the student dexterity and speed with familiarisation and practice of the task.

They were well supervised by workplace instructors or the school mentor if they encountered difficulties. On some occasions, in emergencies they had to react quickly, and needed help and assistance from the supervisor. They were also

supported by an experienced installation and maintenance crew who could advise and instruct them, when necessary. It was clear that they needed more confidence in their abilities, to be able to perform effectively without the assistance of the group.

The sales office detail was a challenge as the students were exposed to a new environment, requiring new skills. The experience was however essential to expose the students to real customers in a live situation which is not easily simulated in school. Dealing with customers in an appropriate way is a skill highly prized by employers and, the experience is an effective way to build up product knowledge.

The students were given training and a practical demonstration of the art and style for dealing with customers. At first the students observed, until they had sufficient knowledge and experience. They were then left to work individually and make customer contact on their own, under the supervision of the supervisor. The students were told to take a note of the customer's requirements, and if they were unable to satisfy those requirements at the time, the supervisor would help to process the customer request.

The experience for the cohort was of great value, as for most of them it was a new learning skill.

7.3.5 Weeks 7 & 8

The cohort were assigned to new crews, to test their ability to adapt and fit into new circumstances, and work with new colleagues. The format remained the same with one student allocated to one crew and then delegated tasks at customer premises on a daily basis. An average day would entail visits to some six or seven separate locations, for each crew. The cohort had very many opportunities to perform with the other company employees, as the technical skills required were not overly complex.

The customer contact was very high as the job detail was predominantly at private

houses, and invariably the customer or key holder wanted to make sure the job was completed to his satisfaction.

A safety issue arose during cable laying at a new customer location. The procedure as has been recorded before is for one of the crew to scale the concrete stanchion using either a ladder or special footwear with climbing spikes. The cable is then attached to the stanchions at one hundred metre intervals. Manipulating and securing the cable requires strength and dexterity. Performing the operation at a height is hazardous and needs experienced operators.

In the interests of safety it was decided to restrict the cohort experience to giving assistance on the ground and not to perform at heights. The students were enthusiastic and seemed to enjoy the variety and mix of job tasks at many locations, and where they were able to experience different customer situations.

Communication and instruction

The consensus from the cohort was that the teaching and method of instruction had been easy to follow and had allowed sufficient time for practice of the procedures. The increased mentoring presence had given the students significant learning and coaching support and had provided the fulcrum for the instruction process.

> I was worried that the instruction would be difficult to follow. The school mentor was a great help and made me feel comfortable. (S5, G2)

> The instructors were good. They didn't rush and you had time to think about what you were doing. Sometimes I checked with the mentor to make sure I was on track. (S7, G2)

> It was a friendly atmosphere. I had no problems with understanding the work details. (S10, G2)

Personal development

For most of the students the experience of working on their own, away from their school colleagues was at first unsettling until they established a rapport with their individual teams. After the first day they learned to adapt, settled into a pattern and found working with an experienced team to be motivating and very instructive.

It meant they were always paired with someone who had good knowledge of the job and whose manual dexterity was a role model to aspire to. Each student was fully integrated into the crew and had to adjust to become part of that crew, and this gave the student the feeling he was part of the workforce, making a contribution, and part of the team.

The experience in the office on sales and servicing enquiries provided significant learning opportunities for all the cohort and many reported it was the overriding experience of the work placement, learning to deal with customer demands and queries. Above all it got the cohort to adapt quickly, and learn the process of giving customer satisfaction and service.

> The time at Sophon Cable Television Company was great. You were on your own, away from your mates, which meant you felt part of the workforce, not just a student. (S2, G2)

> Being the only student in a team of four was a quick learning process.
> I didn't want to look stupid in front of the others, so I paid attention and tried hard. (S3, G2)

> Dealing with customers is not easy, but it's a skill you must learn, and it was good experience to be able to do it . (S6, G2)

> Joining an experienced team of workers and learning to become part of the group was an important lesson for me. (S8, G2)

> The other guys were great. I felt welcome and comfortable. The technical aspects were not beyond me. (S9, G2)

Technical content

As a member of an installation and maintenance crew of Sophon Cable Television Company the technical repertoire to be mastered is not onerous. The principal elements are to check the signal emission is strong enough for the receiver and to ensure the main cable integrity and subsidiary cable links are secure and intact. The tuning of the receiver set to the main transmitter is all computerised and requires modest technical knowledge.

It is for these reasons an ideal practice ground for vocational students, because they are able to work with minimum supervision on most of the job details that are presented in cable relay technology. The fact that the technical content had been pre-taught at the three day on-the-job training induction period previously, gave the cohort sufficient technical foundation to handle the tasks with more competence.

> I was pleased with my placement. The job detail wasn't too hard, but I need to learn about each machine to improve my knowledge. (S1, G2)

> Television technology is improving all the time, and its helped me understand the latest developments. (S2, G2)

Supervisor's report

The cohort had performed overall with enthusiasm and motivation. The areas of weakness were in some generic skills and awareness of work site regulations. The basic technical skills were satisfactory and had been instructed to a satisfactory level during the school preparation and the on-the-job training induction.

The work provider considered that student technical skills will improve with practice and time served on the job.

However, the school should concentrate on improving the generic skills of lateral-thinking, leadership, and innovation and focus more comprehensively on developing a health and safety culture for the job site.

Students are not prepared to take the initiative and wait to be told what to do. They show too much reservation, and reticence to innovate. The more critical aspect of the student performance was appropriate behaviour in the presence of clients, and a keener sense of safety awareness at the job location.

In some instances students had to be reminded of the importance of behaviour and manners in the presence of customers, and having respect for the customer's property at all times. The students had obviously enjoyed the change of environment and increased customer contact, but needed careful control and supervision at all times.

Some students were able to carry out certain tasks with minimum supervision. However, it was apparent that the technical and generic skill levels of the students covered a broad spectrum, so that some students needed more careful supervision and monitoring than others. The school mentors played an important role as they knew the individual strengths and weaknesses of each student.

Teacher and supervisor assessment of student performance

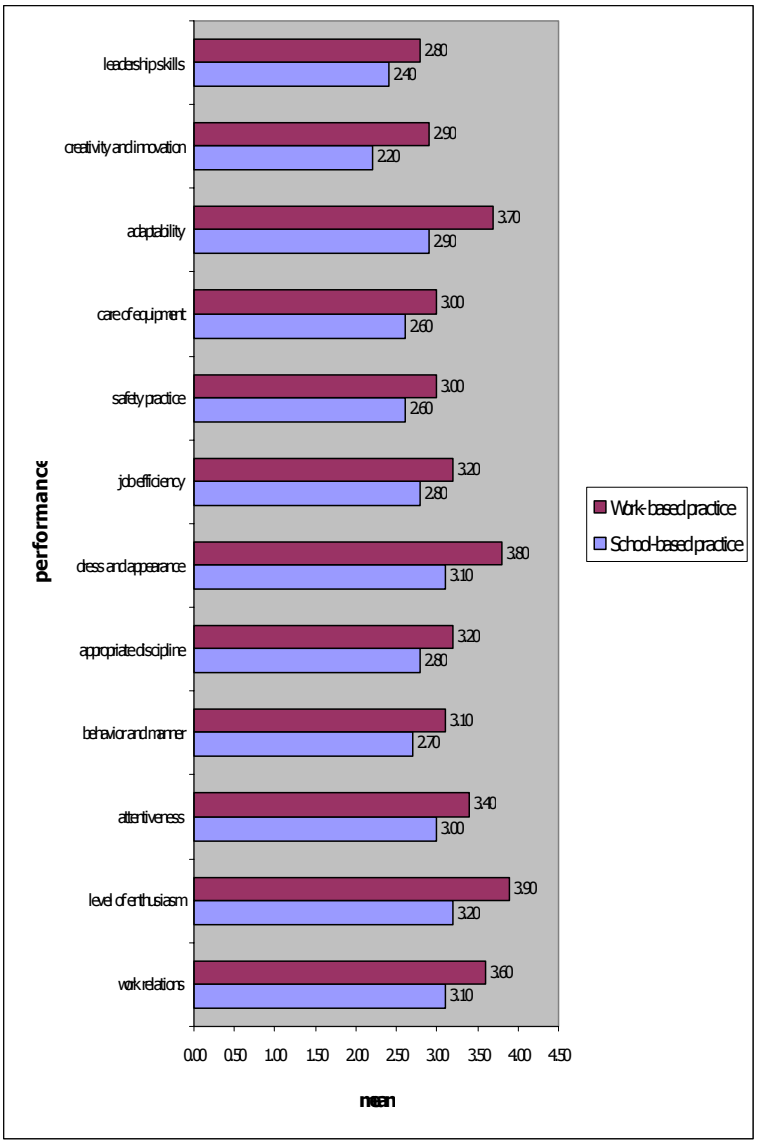


Figure 10 The means of student performance at school and Sophon Cable Television Company

The highest mean was ‘level of enthusiasm’ and the lowest mean was ‘leadership skills’.

$$H_0 : \mu_2 = \mu_1$$

$$H_1 : \mu_2 > \mu_1$$

μ_1 = means of school-based practice

μ_2 = means of work-based practice.

Table 7 presents a comparison of twelve performance criteria between school-based practice and work-based practice at Sophon Cable Television Company

	n	Mean ($\bar{X}$)		SD		t	p
		school-based practice	work-based practice	school-based practice	work-based practice		
1. work Relations	10	3.10	3.60	0.57	0.52	1.861	0.0480
2. level of enthusiasm	10	3.20	3.90	0.42	0.57	3.280	0.0050
3. attentiveness	10	3.00	3.40	0.82	0.70	2.449	0.0185
4. behaviour and manner	10	2.70	3.10	0.82	0.57	2.449	0.0185
5. appropriate discipline	10	2.80	3.20	0.63	0.42	2.449	0.0185
6. dress and appearance	10	3.10	3.80	0.74	0.79	2.689	0.0125
7. job efficiency	10	2.80	3.20	0.79	0.63	2.449	0.0185
8. safety practice	10	2.60	3.00	0.52	0.00	2.449	0.0185
9. care of equipment	10	2.60	3.00	0.84	0.67	2.449	0.0185
10. adaptability	10	2.90	3.70	0.88	0.48	3.207	0.0055
11. creativity and innovation	10	2.20	2.90	0.63	0.57	2.689	0.0125
12. leadership skills	10	2.40	2.80	0.52	0.42	2.449	0.0185

The null hypothesis is rejected, if $t > t_{1-\alpha, n-1}$ because the t values are more than the t critical value of 1.83 ($t_{1-\alpha, n-1} = t_{.95, 9} = 1.83$) for a one tailed test at the 0.05 level of significance for 9 degrees of freedom.

The paired sample t-test results show significant differences between school-based practice and work-based practice.

Reflection

This placement provided great variety in customer locations. The students often experienced five or six different locations per day. They were exposed to considerable customer contact, which necessitated appropriate behaviour and manner. In some instances this fell below accepted levels and this is an area of generic skills competence which must be addressed. The variety of location, and job task was a good stimulus and valuable experience for many of the cohort who considered the placement more interesting and satisfying than the previous one.

An issue, which is clearly identified, and needs rectification, is the disparate performance levels of the students individually. In the future consideration should be given for assessing the students prior to the programme, to ensure a common performance level across both technical and generic capabilities.

The teacher and supervisor assessments indicate that all performance criteria have improved in work-based practice. This might be accounted for through continuous practical exposure to the job detail over the two months duration.

The student performance shows the necessity to develop a range of generic skills for the future. Students need to build a broad range of skills, particularly 'leadership' and 'problem-solving,' which can only be achieved through self-belief and confidence by the individual in his own abilities.

7.4 Student views of the work-based learning programme after the practical experience

The cohort met for a review of their feelings and attitudes to the three months practical experience at school and at their work placement locations. We wanted to find out if there had been any significant shift in attitudes and aspirations and determine what the emergent issues might be. Furthermore, it was hoped some common themes would surface.

7.4.1 Workplace etiquette and decorum

For most of the cohort the culture and manners of the workplace took some adjustment in their normal behaviour.

> At first I was surprised at the formality and reserve at the customer locations. I learned afterwards that many of the customers at Sophon Cable Television Company expect very polite and subdued behaviour. Not a bunch of rowdy students larking about. (S2, G2)

> I was surprised that the company put the interface and behaviour with their customers so high in their priorities. But when you have been to a luxury apartment with valuable possessions you can understand why. At the end of the day the guys in the field are the face of the company. (S6, G2)

> At school there is a lot of mucking about and horseplay. It's normal student behaviour. At work you quickly realise there is a different set of values. I think it is not a big problem to make the adjustment. (S8, G2)

> I found when we were all in a group the attitudes were similar to school and there was a lot of banter and jesting. When you are on your own the 'bottle' goes and you quickly conform to the style of the other workers. (S9, G2)

7.4.2 Personal development

Most of the cohort considered that the programme had helped all round skills both technically and personally. They believed it had helped motivate them to focus on work practice and career opportunities.

> Many programme activities encouraged me to concentrate and get involved in my career prospects. (S1, G2)

> The school-based preparation was a big help in preparing me for the work site. (S3, G2)

> At least I understand how the workplace works and what is expected of me. That knowledge is important. I also know what further skills I need to get to have a decent job. (S4, G2)

7.4.3 Health and safety

Although the cohort acknowledged that the safety and appropriate safeguards at work were essential and crucial to the workplace it was clear that the discipline and lessons imparted had had limited effect.

> I know the supervisor was always talking about health and safety, and I was properly instructed but when I got on with the job I forgot all about it. I was concentrating on the job. (S2, G2)

> Sometimes we know we lack discipline and don't pay attention to the rules, but when my teacher reminds me I try and remember the rules. (S4, G2)

7.4.4 Student concerns about the programme

There was some criticism about the work providers' administration and organisation:

> Some days we had limited practical activity, because the company was waiting for customer orders and they had insufficient jobs to give us. (S4, G2)

> Sometimes I felt awkward asking questions at the work site, when everyone was so busy. (S6, G2)

7.5 Reflections

The statistics from the teacher and supervisor assessments in cycle two indicate that the means of both school-based practice and work-based practice levels have increased overall. The school-based practice means were higher than cycle 1 and it suggests, what other data are indicating, that the school-based preparation programme in cycle 2 has provided a more effective learning experience. This suggests that the changes to the programme implementation by selective choice of work providers and redesign of the programme schedule have produced an increase in student performance across all criteria.

Moreover, it might suggest the preparation and further experience in school-based practice has made an effective contribution to the work-based practice as the means for work-based practice, show higher levels of performance than school-based practice.

7.5.1 Positive outcomes

The data collected in the second cycle would suggest there has been some improvement in the programme design. The changes to the programme have had positive effects:

- The workshop format has affected an appropriate medium to prepare students for work placement by creating working conditions to replicate the workplace as closely as possible.

- The technical content of the programme and the cohort preparation has been more effectively integrated between the school-based learning and work placement periods.

- The revision and reduction in the subjects learned has provided more in-depth instruction and more time to assimilate and practise the subject matter.

- The increase in teaching support at school and at the work locations has provided more effective learning opportunities by giving more individual attention to each student.

- An increased understanding between the school and work providers has produced a more co-operative and collaborative framework in which to work.

7.5.2 Limitations

Data collected also indicated areas were the programme has had limited success:

- Generic and soft skills development.

- Cohort awareness of health and safety practices and procedures.

- Deficiencies in some basic technical skills.

- General conduct and etiquette in the working environment.

7.5.3 Conclusions

The change in cycle 2 to conduct student instruction in a workshop format has resulted in more effective all round preparation for the work site. A hands-on contextual learning environment has induced improved technical skills, and imbued some students with self-directed learning attributes.

The school teaching staff and work providers also concurred that the school preparation in technical instruction had improved and that the integration of school and work placement components was better structured and organised, to produce a balanced programme.

The hands-on practical focus of the programme has been an essential feature of the learning process. In the study, *Learning and Teaching in Initial Vocational Education and Training*, Anderson (2000) cites the significance of the practical elements in vocational courses and teachers stressed the importance of the contextual environment.

The reduction and more judicious selection of work providers improved the health and safety instruction standards at the work site. The work providers gave particular emphasis and priority to the observance and strict adherence to the workplace codes of conduct and safety regulations. However, the student application and awareness of safety standards is still weak and it is evident from the research data collected so far in this enquiry that students require greater coaching in their generic skills capabilities, especially leadership skills and creativity and innovation.

Hersey and Blanchard (1988) developed a model of styles of leadership and instruction, which was conditioned by the 'maturity level' and 'readiness' of the students. They describe maturity as depending on motivation (security, confidence, willingness and incentive) and readiness as depending on ability (experience, education, understanding and role perception). The lower the maturity level the more authoritative the style, with the mentor or instructor making the decisions. The more mature the level of the students, the style becomes less authoritative and more that of a coach, with the leader encouraging a dialogue with the students. We need to re-consider our instruction and teaching styles in future programmes to take account of the learning problems we experienced with student maturity and behaviour at work. The school-based preparation needs to focus more assiduously on these issues. In particular, the preparation at school must focus on the procedures, rules and appreciation of the health and safety conventions at the work site.

Both work providers and school teaching staff agreed that these deficiencies must be the main focus in future work-based learning programmes. Furthermore, the students must be encouraged to be more creative, and have more confidence in their own ideas. Students must be made aware of the importance of learning generic skills. Too often,

as Callan, (2003) found, students are preoccupied with learning skills that relate only to the industry in which they wanted to work and not on learning generic skills.

Serious consideration for future programmes must be given to the composition of the cohort to ensure a more equitable performance in both technical and generic skills. The wide disparity in ability has caused problems for instructors at the work site and has resulted in difficulties in allocating job tasks on some occasions. Further programme development should include a vetting procedure and selection process to produce a more uniform and standard cohort.

For further development the school needs to continue the workshop instruction, and give more attention to conferring with our work site partners to understand the skills they require. Moreover, the school should endeavour to widen the student experience of applications that are presented in the workplace. This will increase student knowledge and expertise of the possible applications to be encountered. In future more on-the-job training opportunities should be made available so that the students get more work site experience.

We need to make the learning experience at school and the work placement participation a natural bridge to career advancement and attempt to reduce the differences in culture and ethos.

The data analysis over the six-month programme suggests that the principal impediment to student performance lies in their attitudes, behaviour and maturity. At the work placement locations it was found that separating the students from their peers produced increased performances and more mature behaviour. Poczik (1995) endorses this view and advances some persuasive arguments for bridging the gap between education and work, and is convinced that the school environment is an unnatural community and causes unruly behaviour. He advocated mixing students with adults on a full-time basis in real settings in the community, and suggested that schools should see themselves as enterprises and businesses. Furthermore, he

suggests that students should view schools as the first workplace to which they are exposed, and change the attitude of students towards school and work.

We need to continue to accumulate more working partnerships with industry, and must encourage our teaching staff and industry staff to exchange roles, so that school staff become more expert in identifying what the workplace requires and industry becomes more familiar with our teaching practices.

Schoolteachers in vocational education can play an influential role in determining what career paths students follow, and can give vital support by providing wise counsel (Billett & Hayes, 2000). Callan (2003) found that teachers play a very important role in the students's development of life skills and the decision making process for a chosen vocation.

We need to develop programmes, which combine learning experiences in school with those in the workplace. Furthermore, our teachers need more time to consult with the work providers to design instructional activities that use workplace experiences to help students learn; practice; and apply knowledge, skills, and habits of learning and working. We need to train and develop more workplace mentors to work with students at work sites to help them relate their workplace experiences to what is being learned at school. It will be one of our responsibilities to make time available for teachers and workplace partners to carry out these important roles.

CHAPTER 8

CONCLUSIONS

8.1 Implications from the results of the research

This 'study', although small in 'scope', has produced some interesting and significant results which it is hoped will make a contribution towards developing future educational strategies to assist the labour market demands.

The outcomes indicate that a properly conceived and implemented work-based learning programme has the potential to address some of the problems cited in the literature review regarding Thailand's human capital problem and preparing young people for the work site. Furthermore, it is anticipated an expanded programme across a wider range of job disciplines can establish work-based learning as an effective strategy to rectify vocational students' skills deficiencies in key areas.

The other area of significance was the importance for students to understand and consider what a career means and the programme has given students clearer employment aims, and job prospects. The study also shows an improvement in student perceptions and attitudes. Results show that student motivation overall has improved and their understanding of what the workplace demands and needs in the way of skills has clearer focus and more realistic objectivity.

This study gave students the chance to develop their overall performance and solve areas of weakness. The appropriate preparation of students for the work site was a very important feature of the process.

Moreover, the programme has made students see the relevance of school-based and work placement activities, by making school and work activities link together, using work-based learning, giving the programme credibility and substance in the minds of

students. The experience has alerted students to the potential of career progressions through skill acquisition and training.

Furthermore, the programme has given the theoretical classroom learning in school credence and authenticity, by endorsement through the school practical activities, and work placement instruction. It has given the students a rational insight into how what they learn in the classroom is carried through to the workplace.

Above all, the experience has inspired and motivated the students to think about their futures from many aspects, and made them reflect upon what they can achieve for themselves and the community at large. It has contributed to the students being able to determine their own direction.

8.2 Summary of findings

The students have learned to adapt and improve their performance by adopting the appropriate attitude and attributes necessary for the workplace. The contextual nature of the programme has given the students a vital introduction to the range of work-skills necessary for today's job market. It has made them understand that technical proficiency is only a part of the skills portfolio they need to construct and build upon for working life. They have been made aware of the range of generic skills the workplace demands, and the experience has taught them the need to acquire the cluster of attributes necessary for employment.

The action research steps of plan, act, observe, and reflect have been an instructive discipline for all stakeholders, and the data collection methods have imposed reflective practices on students that they normally do not experience. The focus groups, individual interviews and writing weekly journals produced significant benefits of reflection and critical thinking.

The programme has given the students a broad range of opportunities, which they have acted upon according to each individual's disposition. The process of planning,

taking action, and then reflecting on that action has been a cathartic discipline which has made all participants focus minutely and rigourously on their own practices, which has improved professional practice.

The assessment data has shown that in each cycle the performance levels have steadily increased across all performance criteria. It was seen that the performance in the workplace showed increases over the school-based preparation performance. This might be accounted for by the appropriate preparation at school motivating and enhancing the workplace performance.

Moreover, after the changes to the development of the programme in cycle two, the data indicate that the average performances showed higher rates. The changes in work provider and changes to programme content implemented in cycle 2 could have contributed to the improvement.

However, we found that there are still many areas of weakness, which we need to address. Students still lack significant preparation in certain areas. The school and stakeholders had misconceptions about some parts of the programme implementation. Nevertheless, from the data collected the stakeholders had essential information from which they could redesign and propose further programme development.

The induction process, and focus group activities were vital components to prepare and motivate the cohort mindset, prior to the practical programme. The Thai characteristic is to have consideration for other people's feelings, obey any authority figure, keep quiet and not challenge the status quo. He has difficulty expressing his feelings and ideas.

The tradition of rote learning and imitation has bred a culture of passive learners, who are programmed to re-act and not pro-act, which has inhibited creativity. It was axiomatic, therefore, to 'undo' some of the traditional Thai traits at the induction stages and during the focus group process.

We wished to promote a climate and conditions where students could freely express themselves and feel confident that their voice and actions were being taken seriously. The emphasis of the programme was to bring about change and to re-evaluate how the students and the school perceives their roles. It was important to get the students to be pro-active, and to get them to think creatively through a programme of exercises at the induction stage.

8.3 Conclusion

The findings on students' performance and stakeholder involvement indicate that the programme has shown advances overall in the following areas:

- The positive attitude of students reflects the beneficial effects of work-based learning, and how it can induce a sense of commitment and pride in their work. It also provided students with an insight into the conventions and standards for the world of work.

- The student perception was that the programme had increased overall their self-confidence, responsibility and motivation. The practical experience had taught them to adapt and work with other people in different situations.

- The programme has influenced and focused student attention on their future career ambitions and prospects, and made them understand the importance of acquiring a set of portable employability attributes.

- The practical nature of the work experience made the vocational content more stimulating and interesting and encouraged more participation than in the past.

- This study increased understanding and co-operation between all stakeholders, and has made them reflect and concentrate their thoughts and established a constructive working framework.

- Most importantly students were able to experience the ethos and ambience of the workplace, and begin to appreciate the meaning of work. Other valuable insights were gained; they learned the value of being on time, accepting responsibility, and how to act and conduct themselves at work.

- The students have had a wide range of experiences in different work environments, and a variety of different job types.

8.4 Future considerations/ recommendations

The study has revealed some important principles to follow and to improve future programmes we need to re-consider the following:

- The need to pre-screen students for aptitude, maturity, and suitability. To ensure a more equal student standard, future cohorts will be assessed for compatibility and aptitude commensurate with the programme objectives.

- The need for thorough student induction and orientation prior to the school-based and work placements. The study has revealed the necessity of a detailed and comprehensive induction to prepare and inculcate the appropriate student attitudes and mindset prior to the practical activities. To overcome student disregard for workplace standards, the process should emphasise workplace regulations and procedures.

- The need for orientation of teaching staff and work providers' staff to integrate the school preparation part of the programme with the work placements. To overcome teaching communication problems and the make-up of the course content it is important that the school staff and work providers' staff co-operate and combine their thoughts to produce an effective, well integrated and coordinated programme.

- The need to focus on generic and social skills. The employers have clearly defined generic skills development as a priority learning requirement to which schools must accede.

- The need for judicious selection of, and co-operation with, the work providers. The selection of partners for work-based learning programmes is crucial for a successful outcome by ensuring the work provider has the organisational structure to be able to fulfil the requirements expected with students under its supervision.

Future school direction

As a consequence of the research findings the school proposes to focus its instruction emphasis on contextual learning in a practical context throughout the school. We believe this approach will be more effective to prepare our students, and give them a solid foundation for working life across all the vocational courses through years 1-5. The school will devise a plan as follows:

- In the normal classroom students will be given assignments in practical learning where they can become more involved, committed and stimulated.

- The classroom curriculum will be built on more practical contextual instruction.

- Teachers will be prepared to be able to instruct practical learning at a required standard, and ensure the work providers' staff meets the same instructional level.

8.5. Further work-based learning programme development

We now propose to include work-based learning programmes for all high vocational students across all the faculty disciplines. Moreover, to promote and stimulate student interest, we wish to make further developments in various areas to make the student involvement in practical learning more stimulating throughout the school.

Programme changes

The induction period to prepare students for the programme should be extended to two weeks every semester so that a more comprehensive initiation can be accomplished. The programmes will then include one-month preparation in school at the workshop. The work placement period will be extended to four months to ensure more comprehensive learning opportunities, and to accommodate the work providers' requirements. The placements at each work provider will last for at least two months.

On occasions, the work providers had difficulties accommodating all the students and delegating work for them. Consideration in future should be given to reducing the cohort number to say five in the group at each work provider. This will necessitate the school increasing the number of work providers. Moreover, because of the problems with variable standards of students we need to select students of a similar ability to make instruction and job allocations easier for teaching staff and work providers' instructors.

Future programmes on any scale will have to undergo a vetting procedure to reduce the range of ability. We intend to categorise students into groups of similar abilities, to facilitate easier instruction and learning. We are aware that students absorb and assimilate knowledge and skill at different speeds according to their abilities. Furthermore, the school and work provider instructors' need to adapt and adjust their teaching styles to accommodate the different standard of students.

Bridging gaps between education and the workplace

Regular forums should be held between the school and employers to exchange ideas and discuss ways to improve the integration and synergy of school and work. The school should canvass and cultivate a pool of appropriate employers in relevant industries who are suitable work providers. From this association, the information and research gathered can build a data-base of appropriate companies to enable the school to be able to mount effective programmes in the future.

The school and work providers should have an analytical exchange of views about the problems, prior to the start of the practical activities to agree the teaching strategy and combine learning experiences in school with those of the workplace. Teachers and workplace instructors will have to get together to devise activities that use workplace experiences to help students learn; practise; and apply knowledge, skills and habits for learning and working. Teachers and work site instructors should work together to keep the school and work site requirements complementary.

Deployment of teaching staff

The school will need to confer with employers and appoint suitably qualified teachers to mentor and supervise students at the work sites and assist them to relate work site experiences to the school experience. The school will have to make time to get together with the workplace partners to construct suitable programmes. This will require flexibility and possible re-scheduling of work schedules in school and at the workplace.

Currently, it is not proposed to increase the cadre of teachers necessary to support future programmes. We will be able to accommodate school-based and work placement instruction by judicious re-scheduling and rotation of staff.

Technical skill development

A regular forum should be held between the work providers and school to discuss and agree the range of skills needed to be developed. The work providers can advise the school on new technology development, and on some occasions might help the school with equipment and human resources. Work providers can demonstrate the latest state of the art equipment, which will be a good opportunity for developing closer relationships between the school and the workplace. The school and work providers must agree a strategy to share the responsibility of technical instruction.

The study has shown that students need to improve many facets of their ability to work with tools and equipment. The school proposes to teach bench work skills for a technical foundation as it was apparent that skills in manual dexterity and knowledge of some appliance applications was weak, and requires more practical experiences. The school plans to increase on-the-job-training opportunities, community service occasions, and job- shadowing experiences, during the school-based preparation period. In addition, during the workshop period specialists from the work providers will give tutorials in equipment handling. To gain further technical development training, students will receive in-depth practical instruction during the work placement activities.

Generic skills development

The preparation for the workplace is crucial. The right attitude and disposition, and the motivation to want to learn are essential qualities employers seek. The right focus and adroit generic skills are as important initially as technical ability, which employers argue they can teach.

Employers in our study viewed the teaching of generic skills as a responsibility of the school. It is also the area of the greatest student weakness. Our primary focus in the future will be on developing a cluster of generic skills through an adult learning strategy.

We realise there is a need to equip our teachers with the skills necessary to instruct the students, and a need for their own professional development. Previously we had a contract with a training company, each semester for Aksorn School of Technology Pattaya teaching staff, with many specialist consultants. The company had been used to assist our teachers to enhance their teaching expertise to impart knowledge and proficiency to the students. The teachers were given a course on the general development of teaching principles, but without specific direction. However, we now have a clearer understanding of the direction to follow to solve our student problem.

We intend to use the same training company to teach our staff to implement generic skills instruction.

Our concern is to give students a proper grounding and foundation by imbuing them with a set of life and generic skills upon which they can build. Our intention at Aksorn School of Technology Pattaya is to make life skills and generic employability skills the future priority learning focus. We plan to hold training programmes for all teaching staff. Furthermore, seminars will be arranged on a regular basis for all stakeholders at which the planning needs of the school and work providers can be debated.

Julian (2004) confirms "Teachers and trainers need to have the skills to use innovative learning strategies to ensure that the generic skills are learned in context and that learners thus become competent". Our training programme will cover all the generic skills as defined by Kearns (2001) and utilised in the Sanguinetti et al., (2004) study.

- Training courses to instruct teachers on how to teach appropriate work readiness and work habits.

- Students to learn communication and interpersonal relationship skills and how to adapt to given situations.

- Students to be trained to adopt lateral thinking and problem-solving skills in a variety of situations.

- Students to learn to explore and exchange new ideas and become more self-confident, which can lead to good leadership.

This view is supported by Kearns (2001) who reviewed the teaching and learning status of generic skills in vocational education and found: "fostering generic skills requires active learning strategies in which learners take responsibility for their own

learning so that they develop the attitudes, habits and skills of motivated lifelong learners".

Sanguinetti et al., (2004) in their research report on the *Development of Skills for Life and Employability in Adult and Community Education* based their definition of generic skills and attributes on Kearn's (2001) study, *the Developmental Framework of Generic Skills.*

Sanguinetti et al show how adult pedagogy can contribute to generic skills learning, and identify a pedagogical framework for teaching generic skills. The report examines how generic skills are developed and taught, and concludes as others have found that the answer is complex and involves multidimensional pedagogies (see figure 11). In particular they refer to the importance of the physical environment 'place' to develop generic skills to the relationships between teachers and learners and the content of the curriculum.

Sanguinetti et al reinforce the conclusions of this study which show that the change of the place of teaching (workshop teaching, field visits and work placements), and the relationships between mentors, instructors, supervisors and students contributed to increased generic skills. Whilst curriculum improvement had been made (orientation programmes and a focus on practical instruction in school) more changes need to be made in this sector.

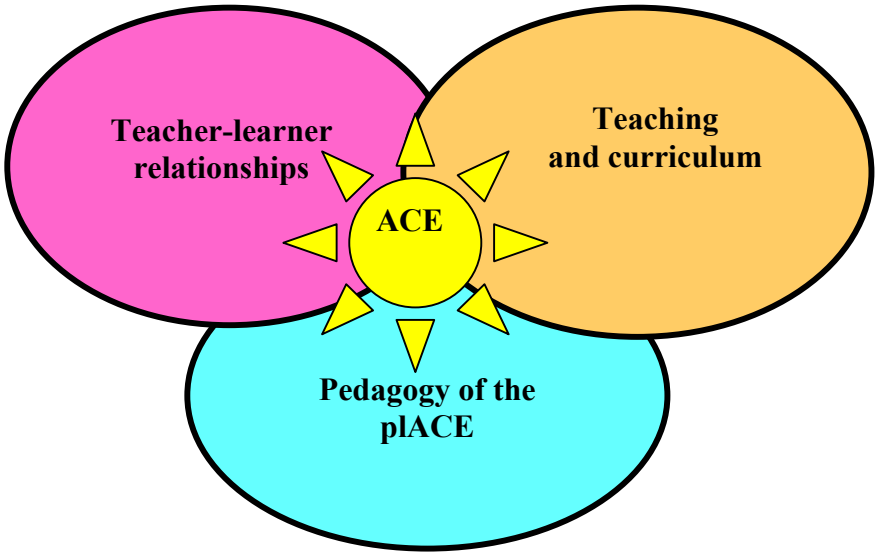


Figure 11 Three dimensions of ACE pedagogy
(Sanguinetti et al 2004)

Gibb and Curtin (2004) state that generic skills training emanates from adult learning principles which are reinforced by diverse learning experiences and strategies. They advocate that generic skills acquisition is best learned in authentic life and work situations. Julian (2004) in her contribution to *Generic skills in vocational education and training-research readings* in Gibb (2004) describes "how generic skills are currently incorporated in training packages through dedicated units of competence and by being embedded in units of competence".

Although it is accepted by most researchers that generic skills are best developed in real work settings, the school intends to give students a generic skills' foundation to prepare them for the work site. The foundation learned at school can be further developed through experience in the real work setting at the workplace. We need to get the work providers' co-operation to develop generic skill training implementation. Furthermore, we need to reconsider an assessment system to evaluate student performance in the area of generic skills.

One of the principal strands to learning generic skills is that they can be learned by following and observing exemplary practice. In other words students can assimilate skills and techniques by emulating the roles demonstrated by teachers, and other role models (Callan, 2003, Sanguinetti et al., 2004).

Furthermore, we believe that we can build upon and develop the teaching techniques we implemented in cycle 2 (see chapter 6). During the school-based preparation in the workshop, adult learning strategies were introduced. It was seen that some students were able to take direct control of their own learning, and the teacher had become more of a facilitator in the student perception.

We must persist in and pursue a policy of andralogical learning where the instructors and students share the authority and share the learning experience. The change in emphasis to the learner-centred philosophy through workshop instruction demonstrated the benefits of this strategy with some students showing increased maturity and responsibility.

The workshop format had stimulated and created the appropriate environment for many of the conditions advocated by Knowles (1980). In particular, students prefer autonomy and to be treated as having maturity and responsibility for self-direction. They are more motivated to learn by intrinsic factors: for example, desire rather than need.

However, the issue of student behaviour and performance with regard to health and safety needs addressing. The learning process was not as progressive as expected in spite of increased instruction and practice of this important discipline. We need to re-consider our style and mode of instruction in relation to the level of student maturity (Hersey and Blanchard, 1988).

Learning theory tells us that a social and group environment can advance and facilitate student learning (Vygotsky, 1978; Lave and Wenger, 1991). Moreover, the composition and characteristics of the group is a determining ingredient for the learning process as the group members interact, and learn from each other (Johnson

and Johnson, 1987). Johnson and Johnson (1987) provide evidence that by working in teams students achieve at higher levels in their thinking processes and retain information for longer than students working independently. For these reasons the school preparation in the workshop and the group activities in the workplace were essential factors in the programme. A more selective process for student entry into future programmes will benefit the composition of the cohort.

The combination of one month's workshop instruction during the school-preparation period and an increased induction programme of two weeks will foster and create more learning opportunities. Moreover, the expanded period of work placements to four months will promote and consolidate the learning process.

Working in teams had fostered some generic skill attributes. The workshop formula now needs to be refined and re-focused more specifically on generic skills. Through the process of reflection it is evident that our teaching strategy was on the right path, but now needs further consolidation and development through training.

8.6 Work-based learning and professional development

This action research study has encouraged all stakeholders to consider and evaluate their own standards. The school had to examine carefully its own practices and seek appropriate solutions to identified problems. The development and implementation of the programme was a challenge to all school members and work providers and necessitated rigourous planning, discussion, and reflection. It was necessary to create effective partnerships and co-operation with all the parties involved to resolve the issues presented.

As the researcher, this programme has helped me to re-consider the essence of the problems in the vocational education of students at my school. I had the opportunity to observe and study the development of how to effect change in the various areas at issue. Through the process, I gained greater insight and understanding of the school dynamics and the teaching processes.

Comprehensive observation and interviews with teaching staff and students gave me a greater understanding of their nature and attitudes. It also gave me more in-depth experiences of the work environment, which I had not examined in detail before, and made me more aware of what the school needed to achieve to accommodate the local community. Furthermore, I had gained knowledge from the experience by communicating with employers and employees on many levels, to get an appreciation of their psyche and requirements.

It has made me realise the importance of strong relationships with all stakeholders to make the programme more effective. As a school manager the action research process of constant and critical reflection during the programme has given me essential constructive information to improve future programme direction. Moreover, it has helped me to manage and understand the schools circumstances, and future requirements.

8.7 A final comment

It is hoped that the results of this small-scale enquiry will serve as a template for further research into work-based learning in Thailand, and persuade other educational bodies and agencies to put commitment and resources behind embarking on more widespread work-based learning endeavours. Thailand's economic health and well-being is to a large extent reliant on its labour market capability, to keep abreast of its competitors.

The vocational school sector has to play a major role to ensure it is producing students who have the capabilities to satisfy labour market needs, and it is imperative that both educationalists and employers seize the initiative and make a commitment to establish and maintain a globally competitive workforce. From my perspective, I am convinced, as a result of the research, that work-based learning has a significant contribution to offer.

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APPENDIX A

STUDENTS' OPEN-ENDED QUESTIONS

Students' Open-Ended Questions (Focus Groups)

Pre programme Implementation

1. What are your weaknesses in practical skills for the present day work environment?
2. What specific skills do you need to develop for your future career?
3. What basic knowledge do you need to further your career?
4. What additional elements do you need to develop in your attitudes to work?
5. What do you understand by the term practical learning?
6. What do you anticipate and expect will be the benefits of attending the programme?

Post Programme Implementation

1. What is the primary overall benefit you have gained from this programme?
2. What has been the main obstacle working this programme?
3. How will work-based learning encourage your future career prospects?
4. How did the programme meet your needs and the needs of industry?
5. Would you attend another practical learning programme if offered?

APPENDIX B

STUDENT JOURNAL

Student Journal

Name_____ Date_____

Week_____

Directions : For each student, please complete a record of your experiences weekly.

What have you learned from the programme this week?

Identify your personal feelings and frame of mind concerning the programme this week.

APPENDIX C

TEACHER AND SUPERVISOR ASSESSMENT OBSERVATION FORM

Teacher and supervisor assessment

Observation Form

(To be completed by school and work site supervisor)

Student's Name : _____

Observer's Name: _____ Date _____

Direction : Put a tick in the box that best describes the student's performance. Please comment if appropriate.

5 = very good

4 = good

3 = satisfactory

2 = fair

1 = poor

Performance Criteria	Performance Rating				
	1	2	3	4	5
1) Work relations					
2) Level of enthusiasm					
3) Attentiveness					
4) Behaviour and manner					
5) Appropriate discipline					
6) Dress and appearance					
7) Job efficiency					
8) Safety practice					
9) Care of equipment / tools					
10) Adaptability					
11) Creativity and innovation					
12) Leadership skills					

Other comments

_____

_____

APPENDIX D

STUDENT INDIVIDUAL IN-DEPTH INTERVIEW QUESTIONS

Student individual in-depth interview questions:

1. Do you have any problems so far with the programme?

2. How is the programme helping your working skills development?
3. Is the programme content appropriate to your needs?
4. How is your relationship with the work provider and the other employees?
5. What are the skills you need to develop?
6. Which skill has the programme helped you develop the most?
7. Is the school preparation period helping you make the transition to the work placement?
8. Are you getting appropriate instruction at the work site?
9. Are you getting support and help from the school staff?
10. How can we improve the programme?