

**MEETING CUSTOMER EXPECTATIONS:
QUALITY IMPROVEMENT OF THE IVE(TSING YI)**

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By

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ABSTRACT

Meeting Customer Expectations: Quality Improvement of the IVE(Tsing Yi)

By Martin L.C. CHAN

Over the last two decades, a considerable number of studies have been made on quality management issues in the field of education such as meeting the needs of students and parents. Yet, little attention has been given to that of the vocational higher education institute. In response to this gap, this study aims to review the operation and effectiveness of the quality assurance (QA) system at the IVE(Tsing Yi), and challenge the validity of various quality improvement approaches and concepts. Indeed, this is the first local research into this subject matter and two key stakeholders of the institute, namely the students and employers are involved.

At a time when all forms of training are expected to meet the needs of the trainees and the industry, this study finds that there are several mismatches between stakeholder expectations in vocational education offered by the IVE(Tsing Yi). There is no consensus about the desirable balance between generic and vocational-specific skills and knowledge, which implies some of the quality management literature is controversial. For example, the findings bring out a problem with the idea of fitness for purpose, and suggest a more complex reality that quality cannot be defined by either the students or the employers. Rather, quality should be viewed through a multi-dimensional or layered approach, and vocational education needs to be responsive to different stakeholders. In addition, the study reveals problems in the performance indicators approach, in particular that it fails to provide prescriptive suggestions for service improvement. This study shows the student-centred approach is also a problematic view of quality management as most of the students do not grasp the trend of the labour market and the core qualities that the employers are looking for.

In respect of reviewing the quality systems of the IVE(Tsing Yi), the results demonstrate that some performance indicators of the existing QA system do not represent the felt needs and expectations of the customers. This implies an urgent need for the management to review the existing QA practice in order to accommodate the ever-changing environment, and to satisfy the requirements of both accountability and self-improvement. In examining the results, a range of recommendations at the practice, policy and research levels are made.

KEY WORDS:

quality management, vocational education, customer expectations

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LIST OF ABBREVIATIONS

ANOVA	Analysis of variance
BA	Business Administration
CCSEQ	Community College Student Experiences Questionnaire
CN	Construction
DV	Dependent variable
ENG	Engineering
FEFC	Further Education Funding Council
HD	Higher Diploma
HK	Hong Kong
HKSAR	Hong Kong Special Administrative Region
HKU	The University of Hong Kong
ICT	Information and Communications Technology
IEM	Industrial and Engineering Management
IPA	Importance-Performance Analysis
ITRU	Industrial Training Research Unit
IV	Independent variable
IVE	Hong Kong Institute of Vocational Education
<u>M</u>	Mean
N	Number
NIST	National Institute of Standards and Technology
Ph.D.	Doctor of Philosophy
PI	Performance Indicator
PR	Public Relationship
QA	Quality Assurance
QAU	Quality Assurance Unit
QC	Quality Control
SAO	Student Affairs Office
SCANS	Secretary's Commission on Achieving Necessary Skills
SD	Standard Deviation
SSRC	Social Sciences Research Centre
TQC	Total Quality Control

TQI	Total Quality Initiative
TQM	Total Quality Management
UCE	University of Central England
UCLA	University of California
UK	United Kingdom
US	United States
VTC	Vocational Training Council

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CHAPTER 1

INTRODUCTION

As a major provider of vocational education and training in Hong Kong, the Vocational Training Council (VTC) is to provide high-quality and cost-effective vocational education and training that can meet to the requirements of Hong Kong's employers and the community. The nine campuses of the Hong Kong Institute of Vocational Education (IVE) under the VTC offer a wide spectrum of training programs ranging from basic craft to higher diploma. The emphasis on the vocational aspect is shown in the mission statement: to 'provide **students** in Hong Kong with high quality vocational education and qualifications of international standards which are directly applicable to the requirements of Hong Kong's **employers** and the community' (VTC, 2004). This mission stresses the importance of the industry. As a student counselor of the IVE (Tsing Yi), the research needs to provide services to students and employers. From time to time, the researcher receives their feedback on how to improve the service quality. This reflects a lack of channels or mechanism to collect users' views, and drives the researcher to think about the need to conduct a study on examining the quality assurance systems of the IVE.

At a time when all forms of training are expected to prove their value in the market place, this case study aims to investigate and chart the matches and mismatches between customer expectations and vocational education services offered by the IVE(Tsing Yi) campus so that quality improvements can be made. Apart from generating a list of areas for quality improvements, this study also aims to reflect critically on the quality assurance mechanisms and effectiveness of the quality assurance system after its introduction to the VTC in the year 2001.

Despite much stress on meeting customer expectations and continuous quality improvement at IVE, the effectiveness of its QA mechanisms has never been checked. This study of customer expectations has been driven by several concerns about quality at IVE. First, the process of developing the IVE quality assurance mechanisms was not clearly specified. Second, these indicators were put in place several years ago and no review of their effectiveness was conducted afterwards. Third, though feedback is collected regularly from both the students and employers, they can only be accessed by people at the management level. Therefore, most of the IVE staff do not have any idea of customer satisfaction with the service provision. Last and most importantly, only a minority of the staff know about the quality assurance mechanisms since its implementation or have received relevant training. These may lead to quality gaps and produce dissatisfied customers. For example, if some of the significant customer expectations have not been embedded in the quality systems, there may be problems in the IVE quality framework and subsequently the performance indicators approach. Or, if this study finds that the IVE(Tsing Yi) students and employers are dissatisfied with the service provision, there may be limitations of the total quality management (TQM) system.

To be specific, the concept of quality emerged in the industrial and commercial sectors in the 1900s. In the manufacturing and commercial fields, quality can be viewed as meeting customer expectations, delighting customers, fitness for purpose, zero defects and conformance to service specifications. According to Sallis (1993), quality in education is yet still a vague and slippery concept. It is difficult to define and it means different things to different people. The present study will explore what quality means in the context of vocational higher education. Besides, there is no doubt that any quality

movement is looking for ways to achieve, ensure, and improve a) the efficiency and effectiveness of administrative procedures or b) customer satisfaction. This study will assess the effectiveness of the current quality assurance practices of IVE and to discover whether quality management in the field of education leads to better service or customer satisfaction as it does in other sectors.

In brief, the implementation of the QA policy at IVE is expected to ensure delivery of quality service to students and employers. This study will confirm if there are mismatches or wide gaps between customer expectations and service delivery. If so, there may be limitations in the VTC quality improvement mechanism or in applying the concepts of QA in an education setting. Furthermore, the study will generate fruitful data for examining the conceptions of quality expressed in terms of its purpose, the process of the continuous improvement mechanism and its applications in the vocational higher education context. Based on such an analysis, critical examination of various quality improvement approaches centred on the students, stakeholders and performance indicators will become possible. The following chapter will provide a broad overview of the study and its justifications.

1.1 Background

Post-secondary institutions are facing increased accountability and competition, budget cuts, increased drop-out rates and declining enrolments. Several global trends have characterized the development of post-secondary education in the past two decades. Five of them will be introduced here: more competition among the institutions, diversity of the post-secondary sector, an increasing emphasis on responding to the customers, an increasing emphasis on demonstrating the value and effectiveness of institutions and the growth of marketing.

A competitive environment in the sector

According to Meek (2000), there has been a massive expansion of the post-secondary population in many countries like Australia, Belgium, Denmark, Germany, Japan, New Zealand, Norway, Sweden, United Kingdom (UK) and United States (US). This is reflected in the number of students participating in some form of post-secondary education over the past two decades, which rises from 50% in the early 80's to 80% in the late 1990's. To take the UK as an example, the number of students increased by nearly six times from 446,000 in 1962 to 2.6 million in 1992 (Smith et al., 1995). Despite a growth in the number of institutions in the last two decades, there has been increased competition amongst institutions for students, resources and prestige.

Drawing on a series of studies, Smith et al (1995) conclude that increasing competition amongst institutions is partly due to the top-down policies of Government departments, funding councils and other agencies designed to create quasi-markets, and partly a result of the bottom-up emergence of more competitive values and behaviours within and between institutions. For instance, in the UK the introduction of the Education Reform Act in 1998 with features like open enrolment intensified the competition of the sector. Similarly, throughout the 1980's, institutions in the US increasingly found themselves being forced to behave like commercial enterprises in a fiercely competitive market (Gareth, 1993). All this has led to their sharper focus on the need to better market their courses. Facing this trend, this study explores how institutions like the IVEs behave in such an environment, and how they should adapt to maximize revenue.

Diversity of post-secondary education

Diversity of post-secondary institutions is another dominant feature. In the UK, for

example, there has been a sharp increase in the number of institutions from 109 (in 1980's) to more than 500 (in 1990's) and a proliferation of institutions ranging from those providing job-specific vocational training to those fostering a much wider 'careership' (Smith et al., 1995). An increase in institutions implies a more intense competition for the resources from the Further Education Funding Council (FEFC). This culture further intensified the need to provide quality services and to market the institutions. Similar development has also been found in other countries such as Australia, New Zealand and US (Akira, 1997; Meek, 2000). In a similar context, this study explores how vocational education service providers like IVEs position and market the programs.

Increasing emphasis on responding to the customers

The increasing international emphasis on meeting customers' expectations and achieving their satisfaction as a basis for assuring and reflecting education quality has led to a range of studies in different countries such as the United States (Freindlander et al., 1993; Larry, 1993; Pace, 1984), Japan (Eriguchi, 1994), Britain (Green et al., 1994; 1998), and Canada (Nadeau, 1993). Citing the measurement of students' expectations as an example, Nadeau (1993) conducted a national-scale study in all Canadian post-secondary institutions. In his study, 11,450 students were asked to rate 1,447 indicators using 117 criteria, covering six areas including students, programs, faculty, administrators, institutional environment and institutional context variables. Numerous studies to achieve a better understanding of the customers have been carried out by the academics or initiated by the institutions in different countries. Similar to this study, those studies aim to assess the extent to which customers' needs are met and generate recommendations for improving service quality.

Increasing emphasis on demonstrating the value and effectiveness of institutions

Quality is a complicated construct and it means different things to different people. Some scholars attempt to define it clearly while some examine its applicability to different fields such as education. Though its applicability to the education setting is still debatable, a group of researchers and practitioners tried to use precise operational definitions and/or concrete indicators to make it observable and measurable. A set of objective criteria and indicators of quality could serve this purpose and these indicators should be 'made of perceptions of student population, faculty, employers, government etc.' (Nadeau, 1993, p.61). Indeed, more and more stakeholders of the institutions would relate these standards to their achievement while the funding bodies would allocate resources to individual institutions according to their performance measured by these standards (Briton, 1996; Spicuzza, 1992; Winston, 1997). Similarly, a set of performance indicators have been instituted at the IVEs in 2001 with an aim to promote continuous quality improvement but their effectiveness has never been checked.

Growth of marketing

The trend towards expanding the system with increasingly intensified competition among institutions and more stress on quality education encouraged the growth of marketing. Indeed, the survival of a particular institution is largely reliant on attracting enough students. This is in line with Barret's (1996) argument that '... Marketing is essential to the survival of colleges, and that it must be consumer-led' (p.70).

According to Kotler (1971), when institutions face falling demand, they need to focus on the customer (i.e. students) and remarket the product (i.e. education). Though this trend may not apply universally and the introduction of marketing concepts to the field of education is still controversial, institutions including IVEs have begun to allocate more resources to marketing, and respond to customers' needs and expectations (Berger,

1996; Coates, 1998; Driscoll et al., 1998; Meek, 2000; Seaman, 1991; Swenson, 1998).

1.2 Significant ideas and challenges

As Coleman and Bush (1994) state, institutions are facing a more competitive environment where their survival ultimately depends on attracting sufficient numbers of students and this has encouraged a 'marketing orientation' (p.68). Yet, introducing a business orientation to the post-secondary education sector and adopting a stakeholder-centred approach have provoked a great deal of controversy about drawing an analogy between education and commercial products (Barret, 1996; Coleman, 1994; Bush et al., 1994; Garlick et al., 1993; West-Burnham, 1992). For example, West-Burnham's argument is that teaching staff are the custodians of knowledge and transmit it according to best professional practice while the customers (for example students and employers) cannot know best because they do not know. Barrett (1996), Coleman (1994) and Coleman and Bush (1994) identify a number of barriers in responding to customer expectations. In many institutions, administrative convenience takes priority over customer feedback, and the teaching staff may not be committed to the delivery of customer-led services. These barriers may hinder the provision of quality service.

1.3 National context of the study

As a result of an expansion of tertiary education and the increased choices available to students, the competition among local post-secondary institutions is particularly keen. Facing similar trends mentioned previously, marketization and the need to respond to the users has become more and more critical in Hong Kong. Indeed, Hong Kong's post-secondary education system has undergone a period of dramatic expansion in the last decade. In 1989/90, less than 10% of secondary school leavers could receive

post-secondary education and in 1994/95, that percentage had risen to 18%. In 2000/01, 27, 635 senior secondary school leavers, representing 31.8% of the average relevant population, had access to post-secondary education in Hong Kong (Education and Manpower Bureau, HKSAR, 2002). In 2000, the Hong Kong Government committed itself to a policy to ‘... facilitate tertiary institutions, private enterprises and other organizations to provide options other than the traditional sixth form education, such as professional diploma courses and sub-degree courses’ (Hong Kong Government, 2000). More specifically, the report highlights,

In developed countries and some major cities in Asia, up to 60% of senior secondary school graduates pursue tertiary education. For Hong Kong, however, the rate is just about half that, not only are we lagging far behind, but we are failing to meet the needs of a knowledge-based economy. It is imperative we catch up. Our objective is that within ten years, 60% of our senior secondary school leavers will receive tertiary education. By then, we will need to provide about 28 000 additional places for higher education, bringing the total number to around 55 000. (Hong Kong Government, 2000, p.66).

1.4 Local context of the study

Brief introduction of VTC and IVE

Lee (1999) describes the Vocational Training Council (VTC) as the major provider of vocational education and training in Hong Kong. As a Government funded body established in 1982, VTC has both advisory and executive functions. For example, it advises Government on Hong Kong’s needs for vocational education and training. In addition, it also operates and maintains nine Institutes of Vocational Education, eighteen Training Centres, and three Skills Centres (to provide training for persons with a disability), a Management Development Centre, a Continuing Professional Development Centre, an administration for apprenticeships, and a range of supporting

and related services.

The VTC's education provision represents 80% of its work. To respond to changes in the economy and society, such provision has been radically restructured and reorganized. Its main focus was the integration of its two Technical Colleges and seven Technical Institutes into one Hong Kong Institute of Vocational Education (IVE) from 1 September 1998.

Role of and challenges faced by IVE

A large educated and trained workforce is essential to maintaining the complex infrastructure of Hong Kong (Lee, 1999). As the largest provider of vocational education in Hong Kong, the nine IVE campuses serve more than 20,000 full-time and 50,000 part-time students in the year 2001/02. A wide spectrum of courses ranging from the basic craft to the higher diploma levels are offered in order to cater for the needs of those with Form 3 or above qualifications who wish to continue their studies outside the conventional system and be equipped with vocational knowledge and skills. This is consistent with its mission statement to meet the developing needs of Hong Kong by satisfying employers, students and stakeholders through ... a preferred alternative route in vocational education and training (VTC, 1998).

Following the introduction of the Chief Executive's policy aiming at enabling 60% of the senior secondary school leavers to receive tertiary education by 2010 (HKSAR, 2000), there has been a sharp increase in the number of associate degrees run by local institutions. A variety of overseas undergraduate programs and self-financed post-secondary programs have been offered by the education and commercial sectors. A massive expansion of those post-secondary programs in Hong Kong has intensified

the competition of the sector. Meeting student expectations is essential for IVE to compete for better entrants and reduce the drop-out rate of the current students.

In addition, as a result of budget cuts from the Government and at the same time the request to increase the post-secondary education places, IVE has to run more and more self-financing programs. For example, a 'School of Business and Information Systems' was set up in September 2001 to provide a wide range of self-funded higher diploma courses. This has intensified the competition for the students with other IVE campuses, and has urged an increased awareness of the importance of quality assurance and student-led services at the IVE.

Besides, probably due to the widening access to post-secondary education, there has been a general decline in the standard of graduates. At the same time, IVE was criticized for not being able to produce students with the knowledge and skills necessary to the workforce. The downturn of south-east Asia's economy after the year 1997 gave rise to unsatisfactory employment rates of graduates from post-secondary institutions including IVE. IVE was further criticized for failing to respond to the changing societal needs. All these drove public attention to enhance the accountability system of this sector. Due to the huge amount of public funds invested, the Chief Executive stated clearly that a thorough review of the education system at all levels should be conducted to enhance the overall quality in education (HKSAR, 1999). In response to this initiative, local institutions like IVE have made efforts to improve the service quality of the organization. For example, over the past years, teaching and learning development, curriculum activities and policies, and staff development have been introduced as part of the VTC's Total Quality Initiative (TQI).

Quality Assurance Systems for the VTC

Referring to the papers prepared by the Steering Committee on Quality Assurance and Audit, a new Quality Assurance Unit was set up in 2000 to drive and coordinate efforts in total quality management at the VTC. In respect of the courses offered by the IVE, there are a set of quality assurance procedures including course planning, validation and review, and monitoring throughout the year by Course boards, the Academic Review Committee, the Validation Panel, and the IVE Academic Board. As these measures are expected to facilitate quality delivery of services to the students and employers, this study is to check if the service provision really meets their needs. In other words, if this study finds wide gaps between the customer expectations and the service provision, the implication would be that quality mechanisms do not work effectively and should be reviewed.

Under the Memorandum of Administrative Arrangements, the VTC is obliged to propose in its Annual Plan output and outcome performance pledges as justifications for the resource input it receives from the Government. Such pledges are underpinned by indicators for planning and measuring progress of the VTC's activities. In this connection, the VTC has identified several performance indicators (PIs) for use within the VTC for the purpose of monitoring performance, based on the 'organizational performance results' category of criteria in the internationally accepted 'Baldrige National Quality Program'.

Implementation of the framework of Performance Indicators

As stated above, having regard to the VTC's objective to provide high quality, cost-effective, internationally acceptable vocational education, training and qualifications, directly applicable to the requirements of Hong Kong's employers, a

framework of performance indicators is drawn up with reference to the Baldrige Quality Program (National Institute of Standards and Technology, 2002). A system of clearly prescribed performance indicators has been instituted and targets set for each Annual Plan cycle. These are translated into the key elements of the quality processes for individual operational units within the VTC, including quality planning, system audits and performance measurement (self-assessment and monitoring through inspections and validations).

The implementation of the framework of PIs reinforces the quality assurance processes to facilitate quality delivery of service, to commit staff to quality standards, to evaluate the extent to which the VTC is meeting its objectives and to promote quality policies for continuous improvement. PIs are developed as the key components in the quality assurance process, which enable the use of objective evidence in self-evaluation, inspection, improvement, accountability and justifying the Government's input of resources. The PIs include both process indicators, and the contributory factors of the processes and mechanisms which are conducive to an effective and cost-efficient provision of vocational education and training. With reference to the Baldrige model, the four PIs, namely Organizational effectiveness results, Student performance results, Stakeholder focused results and Budgetary and financial results, have been developed for use in the VTC. Though these reflect the awareness and importance of responsiveness to customers and a quality teaching and learning process, only a small portion of staff have been involved and equipped with necessary attitudes and skills to deal with this change. As a result, wide service gaps may be found. If so, there may be loopholes in the QA systems of the VTC and possibly problems in the concepts and applications of QA and TQM.

1.5 Conceptual underpinning

Gerson (1993) defines customer satisfaction as ‘the customer’s perception that his or her expectations have been met or surpassed’ (p.7). According to the customer satisfaction theory (also called the expectancy-disconfirmation model), satisfaction is strictly tied to the customer’s perception of the service or product performance, and can be interpreted as the level of expectations being met. This is consistent with the model of quality developed by West-Burnham (1992) which emphasizes that quality is concerned primarily with customers. It is difficult or even impossible to make customers satisfied if the service providers do not know what their customers are expecting. In this study, students and employers who draw on graduates from the IVE campus are the effective customers whose attitudes are critical for success.

As one of the post-secondary institutions in Hong Kong, the IVE(Tsing Yi) needs to achieve the best quality in order to attract sufficient number of potential customers (i.e. senior secondary graduates), and to produce satisfied ‘actual customers’ (i.e. registered students). Meanwhile, the products (graduates) are expected to meet the needs of the primary customers (i.e. employers). As such, the main purposes of this study are to review the service provision of the IVE(Tsing Yi), and to assess if the services meet the customer needs. If this is the case, QA system needs to be reviewed and improved in due course.

1.6 Objective and questions of the research

Facing the trends of more intense competition, diversity of the sector, responding to the customers, increased accountability and decreased resources, vocational education institutions have to identify what services, educational experiences and graduate qualities can satisfy those stakeholders, particularly the students and employers. Since

the 1980s, more and more institutions place top priority on the delivery of 'quality' service. Some of them stress meeting customers' expectations and achieving their satisfaction as a basis for assuring and reflecting 'quality'. In the U.K. and Australia, quality assurance systems in post-secondary education were introduced in the mid-1980s and the early 1990s respectively (Green, 1994), from which quality frameworks set out the elements of quality assurance such as policies on quality and its assurance and control; use of performance indicators; regular reports including statistics and evaluative feedback from a range of stakeholders including students and employers and so on. It is expected that quality education service standards can be maintained by carefully following the pre-determined production processes and being assessed through internal systems of performance review.

In Hong Kong, as a result of the huge amount of public funds invested, the Chief Executive urged a thorough review of the education system at all levels to enhance the overall quality in education (HKSAR, 1999). In response to this initiative, local institutions like IVE have made efforts to improve the service quality of the organization. Taking IVE as an example, a Quality Assurance Unit was set up as part of the VTC's Total Quality Initiative (TQI). Though some believe that QA has led to improvements in the achievement of students in UK and Australian institutions, many argue that the system is too bureaucratic and consumes too much resource. Some also argue that quality improvement systems do not necessarily improve quality. As there is a lack of local research on this issue, the present research aims to evaluate the effectiveness of the current practices of the IVE quality assurance mechanisms (i.e. does the service provision match customer expectations?, and are their expectations met).

As highlighted at the beginning of this chapter, there are some concerns about quality at IVE after the implementation of the TQI in the year 2001. It is timely to review its operation and effectiveness and see if quality management really leads to service improvement. This study aims to examine how far the service provision at IVE(Tsing Yi) matches customer expectations and the extent the IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations. By analyzing customers' expectations and perceptions of service provision, this study makes recommendations about how to fulfil them at the IVE(Tsing Yi), and how to improve the quality assurance mechanisms. Specifically, the present study seeks to answer the following two research questions and a list of specific research questions:

Research questions

1. How far does service provision at IVE(Tsing Yi) match customer expectations?
 - What are the expectations of students and employers regarding vocational education?
 - To what extent have the significant expectations of the students and employers been embedded in the quality framework of the IVE?

2. To what extent do IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations?
 - What are the significant factors affecting the satisfaction levels of the IVE students and employers respectively?
 - To what extent are their expectations met?
 - What are the overall degrees of student and employer satisfaction?

In brief, as the first check against the effectiveness of the practices of quality assurance in IVE, this study will examine whether quality management in education is offering the same benefits and promises as it does in the industrial and commercial sectors. In

addition, the implementation of the TQI for three years might have led to significant changes to the culture and service quality of IVE. The findings of the present study will yield additional insight into the future direction in of quality management especially in the field of the vocational higher education. After that, recommendations on improving the service delivery and the quality systems as a whole can be made. Although this study provides insights into customer satisfaction with vocational education service, it has some content and methodological limitations. For example, the study does not present a perfect representation of vocational education stakeholders as it fails to examine the views of the government and faculties. Since the study focuses on the quality issues, the research design is incomplete when the perspectives of the key fund and service providers are not included. Besides, as survey was adopted as the primary research approach, there were several constraints of the quantitative research methodology such as the lack of clarification and possibility of further probing into the issue. There might also be problems arising from self-reports, and little control over the subjects' responses. In addition, the positivist approach to obtain and analyze data is undeniably and unavoidably simplified for example during the process of operationalizing the definitions and indicators of these concepts. A more thorough discussion of the limitations of the study will be made in Chapter 6 (Section 6.3 Values and limitations).

1.7 Key definitions and concepts to be used

Customer- A customer is anyone to whom a product or service is provided (West-Burnham, 1992). In the field of education, customers primarily refer to students and employers.

Customer expectation- In general, customer expectation means one's hope of gaining

from the use of a product or service, or a belief that something will be derived from a product or service. According to West-Burnham (1992), expectations are more than requirements, which are the basis of 'delighting' the customers.

Customer satisfaction- Gerson (1993) defines customer satisfaction as 'the customer's perception that his or her expectations have been met or surpassed' (p.7). It can also be defined as one's emotional responses to the use of a product or service (Oliver, 1981). In the respect of education, customer satisfaction is a more complicated concept involving not only the affective components but also the intellectual ones (Larry, 1993). In this study, it comprises two key components namely student satisfaction (i.e. students' perception of various aspects of their college life) and employer satisfaction (i.e. employers' views on IVE graduates).

Need- A human need is a state of felt deprivation. According to William (1997), in the context of marketizing higher education, there are at least two categories of needs, namely students' needs for employment opportunities and industries' needs for quality graduates for their vacancies.

Marketing- In general, marketing means working with markets to bring about exchanges for the purpose of satisfying human needs and wants. According to Kotler (1987), it is not just about promotion and selling, but a much broader management concept called 'marketing oriented institutional planning'. According to Coates (1998), the purpose of marketing is to 'study the needs and behaviours of the consumer so as to guide the activities of the producer towards satisfying that consumer' (p.135).

Post-secondary institution- This refers to institutions offering award-bearing

education or training to senior secondary graduates. In this study, post-secondary institution covers university, college, technical college, further education college, higher education college, technical institute, community college and so on.

1.8 Significance and importance of the study

It is important to conduct research on current practices of quality assurance in higher vocational education and to explore whether quality management in education leads to service improvement as it does in industrial and commercial sectors. As the first local study to analyze student and employer expectations in relation to their degree of satisfaction and in relation to the current quality system, this study will generate meaningful implications for practical information for our reference. First, by examining the perceptions of the attributes the students and the employers considered essential, a range of concrete suggestions on improving our service can be made. As such, students and employers will benefit. Based on the IVE experience, the manpower training focuses in Hong Kong can be examined. Second, as stated previously, IVEs are facing the challenges of increased competition from other institutions or sectors, budgetary constraints, increased accountability and declining graduate standards. By relating the findings to the existing QA mechanisms such as reviewing the performance indicators and measures to assure quality, this study will be able to generate recommendations on strengthening the system and on staff development.

In addition, according to the services marketing and satisfaction literature, it is difficult to identify which factors lead to satisfaction. Of significance is that satisfaction measures should come directly from customers. In this connection, the contribution of this research to the field lies in systematically assessing the key attributes from the views of students and employers. These assessments fulfil several functions. First, as

discussed previously, identification of the significant student and employer expectations will be valuable for the design and delivery of the vocational education. Second, insight into their expectations will form the basis of developing strategies for marketing the programmes to the potential customers (i.e. senior secondary students) and the end users (i.e. employers). Third, as Markham & Hagan (1999) state, there is a need to carry out more research into structural models which can help explain the complexities of customer satisfaction. Indeed, the link between customer expectations of vocational education and their satisfaction has never been developed or tested in the local context while engineering customer experience is also an important but undeveloped area. The results from the present study will yield additional insight into these areas.

Since the concept of quality has emerged in the industrial sector, critical examination of its applications to the education field is needed. In the manufacturing and commercial fields, quality can be viewed as meeting customer expectations, delighting customers, fitness for purpose, zero defects and conformance to service specifications. However, quality in education is still a vague and slippery concept. It is difficult to define and a focus of the study is thus to explore whether the above conceptions of quality are applicable to the VE context. As the two key stakeholders, the students and employers will provide rich data for examining the conceptions of quality expressed in terms of fitness for purpose and the process of the continuous improvement. For example, despite much stress on meeting customer expectations and continuous quality improvement, the IVE(Tsing Yi) students and employers may be dissatisfied with service provision. In other words, there may be no real TQM system. Various quality improvement approaches centred on the student, performance indicators and stakeholders in an education setting are also worthy of investigation.

Though the primary focus of the study is a single institution, such an in-depth exploration is expected to give rise to challenges, ideas, questions and issues that can inform more general discussion about policy. For example, there are debates over providing job-specific vocational training rather than fostering a much wider 'general' education at the post-secondary level and about whether vocational education should primarily meet employers' needs and/or expectations.. Furthermore, despite an increasing emphasis on employability skills at post-secondary level, little research has been done to find which areas should be strengthened, whether the employers and students share similar expectations around those skills, and whether this should be enforced by the Government. This study aims to investigate these issues.

1.9 Chapter summary and outline of the dissertation

The chapter has provided an overview of the background to the study and its justifications. In brief, the main purpose of the study is to examine how far the service provision at IVE(Tsing Yi) matches customer expectations and the extent to which IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations.

Chapter 2 presents a thorough discussion of the literature concerning quality in education, meeting student expectations and meeting employer expectations.

Subsequently, Chapter 3 presents details of the methodology of the student and employer surveys including the design of the questionnaires and their implementation.

Then, the research findings of the student and employer surveys are presented in Chapter 4. After that, Chapter 5 examines issues like the match and mismatch of stakeholder perceptions, conceptions of quality, quality improvement approaches,

quality systems of the IVE(Tsing Yi) based on the research questions and findings.

Chapter 6 relates the findings of the research to the questions asked; offers recommendations to bridge the gaps in expectation that have been identified and to improve the QA system of the institute.

CHAPTER 2

LITERATURE REVIEW

With increased accountability and reduced resources, vocational education service providers have to identify what services, educational experiences and graduate qualities lead to student and employer satisfaction. After the implementation of the TQI at IVE for three years, it is meaningful to evaluate its effectiveness in assuring and meeting customer expectations. As stated in the first chapter, there are some concerns about quality assurance mechanisms. For example, only a small portion of staff have been involved in the QA process and minimal staff training on the subject has been provided. Though student and employer surveys are conducted regularly, the reports are restricted to the senior management. As customer feedback forms an integral part of the quality assurance system and is essential to identifying improvement areas, the effectiveness may be weakened when the customers and the majority of the staff cannot get access to this valuable information, and because they do not know its implications. As a result, the effectiveness of the quality assurance mechanisms on matching or exceeding customer expectations may be affected adversely and this study becomes the first to address this area.

Further to a brief introduction of the background of the study and on the concept of quality management and difficulties in implementing the quality management policy, there will be a discussion of the conceptual foundations of the inquiry by reviewing relevant literature in four major areas: quality in education, customer expectations, meeting expectations and customer satisfaction. This review aims to examine various key concepts in the available literature, to analyze the findings of relevant studies, to locate this study in the field of existing knowledge, and to demonstrate the necessity

and significance of this study.

2.1 Quality in education

More and more institutions place top priority on the delivery of 'quality' service. Some of them stress meeting customers' expectations and achieving their satisfaction as a basis for assuring and reflecting 'quality'. Despite much effort devoted to pursuing and improving quality education by implementing quality assurance policy at IVE, there may be problems in its operation like the invalidity of the quality framework. As its effectiveness has never been checked, the present study will act as a pioneer to examine the extent to which the service provision at IVE(Tsing Yi) matches customer expectations, and the extent to which quality assurance systems ensure their satisfaction. It is essential to start with a clear understanding about the meaning of quality and its main applications in the context of education before moving on to the review of customers' expectations and satisfaction. Indeed, they (i.e. customers' expectations / satisfaction and quality) are two closely related concepts. In this part, there are four sub-sections namely conceptions and views of quality and quality management, quality in the manufacturing industry, quality in post-secondary education and finally operationalising a definition of quality.

Conceptions and views of quality and quality management

Pfeiffer and Coote describe quality as a 'slippery concept' (Pfeiffer and Coote, 1991, p.3). Indeed, it has different meanings in different contexts. Sallis (1993, p.11) echoes this by stating that '(quality) ... is perplexing to define and even more difficult to measure. One person's idea of quality often conflicts with another's'. According to Harvey and Green (1993), there are five common views of quality, namely exceptional, fitness for purpose, value for money, perfection and continuous improvement:

- **Exceptional:** It views quality as a kind of innate excellence, something felt rather than seen (Downey et al., 1994). In this sense, quality is recognized only when people have seen many examples of the same kind in the past. This is a relatively traditional concept of quality, which is associated with the notion of providing a product or service that is distinctive and special. It usually confers status on the owner and user (West-Burnham, 1993). The typical example is Rolls Royce, which symbolizes extremely high standards of production and exclusivity. In post-secondary education, it might equate with the general public's perception of Harvard University in the U.S., and the University of Hong Kong in HK in terms of their graduate and research output.
- **Fitness for purpose:** This is perhaps the most popular view, which embodies the idea of fitness for purpose (Juran, 1974). Based on this concept, Deming (1991) and Lomax et al (1996) define quality as meeting or exceeding the users needs and/or expectations, which is supported by Ball (1995) who argues that, quality carries no meaning except that the product or services fit the customer. In the field of education, students are usually the key stakeholders. This definition is adopted by most analysts and policy makers in the field of post-secondary education because it provides a model for determining the specification for a quality product or service.
- **Value for money:** quality could be measured in terms of performance indicators like teacher to student ratios. In view of the problem in operationalizing 'quality education' and variations in customers' expectations, some professionals try to identify a set of so-called objective criteria and/or indicators for measuring it (Gray, 1990; Nadeau, 1993). This approach emphasizes precise operational definitions of each indicator, which should be observable and measurable.

- **Perfection:** This approach largely develops from notions of quality control or zero defects in manufacturing industry. It implies making something in conformity to a specification and bad things like failures, waste and delay should be totally eliminated as far as possible (Rothery, 1991; Sallis, 1993). In other words, excellence here is equated to meeting specification and quality is managed through prevention (West-Burnham et al, 1994). The recent introduction of a number of ‘performance pledges’ or ‘customer charters’ in public-funded organizations which increase their accountability and responsiveness to the users is a typical example.
- **Process of continuous improvement:** Hutchins (1990) criticizes the idea of ‘zero defects’ and ‘perfect satisfaction’. His argument is that quality does not mean an absolute, having zero defects when satisfying the ever-changing customer needs and expectations. Instead, an idea of continuous improvement is suggested (Lomax et al., 1996) and this is what West-Burnham (1993) describes as the ‘driving force of the quality movement’. He further illustrates its applications in Japan where improvement is managed by finding lots of small-scale projects, each of which systematically enhances or adds value to a product or service. This is more than meeting specifications and ensuring zero-defects. The idea is widely adopted by schools and institutions and usually called ‘self-assessment’ or ‘self-improvement’.

A few years later, with reference to ISO 9000, an additional element called customer satisfaction was added to the notion of continuous improvement (Sallis, 1996). It should be stressed that an organization can adopt several of these views simultaneously. Taking Santa Barbara City College in California as an example, its management aims at providing services that match users’ expectations in a cost-effective way while its staff

is much concerned about the extent of the course design and delivery achieving desired educational outcomes (Friendlander et al., 1993).

In the following paragraphs, the applicability of each view of quality to vocational higher education will be explored and their relevance to the present study will be demonstrated. Firstly, the exceptional view is not of much value when it comes to assessing quality in vocational higher education as a whole. For example, if all institutions were judged by the standards of some renowned institutions like RMIT in Australia, most of them would be continually seen as 'poor quality'. Institutions usually develop their own specialties, and such a clear division of work is largely due to the policy of government subvention policy. For instance, in Hong Kong the VTC is the sole provider of courses on Chinese cuisines to train chefs for Chinese food. And this view of quality is thus inappropriate here due to the lack of any benchmark for comparison.

The concept of fitness for purpose view is developmental (Green, 1994) in the sense that the purpose of post-secondary education or vocational higher education may change over time and regular reviews of its suitability are thus required. The major problem with this definition of quality is the existence of multiple purposes in the field, some of which may be conflicting.

The value for money view emphasizes the precise operational definition of performance indicators but it is difficult to be objective in using indicators because although they are measured in terms of numbers, the validity of the scores of the school league tables are commonly questioned. In addition, measures that apply to all institutions in all contexts are likely to distort reality while other types of criterion

referencing also give problems. This study will add insights to the applicability of these two views in the vocational higher education.

Furthermore, the perfection view also has some limitations in its application particularly to vocational higher education. For example, like the value for money view, this definition implies that quality can be defined in terms of measurable and quantifiable standards. But this may not be the case in the context of education.

Besides, the idea of a process of continuous improvement is widely used in post-secondary education including the vocational one. For example, the Baldrige Quality Program (National Institute of Standards and Technology, 2002) stresses improving customer satisfaction and having continuous improvement. This approach emphasizes listening to the customers and motivating staff to respond. It requires a change of culture and Sallis (1996, p.30) puts this as 'not only about changing the behaviour of staff, ... also a change in the way in which institutions are managed and led.' There is no doubt that a total quality culture takes times to develop while staff qualities and strong leadership are needed to ensure smooth implementation.

Since the concept of quality emerged in the industrial sector, critical examination of its application to the education field is needed. In the manufacturing and commercial fields, quality can be viewed as meeting customer expectations, delighting customers, fitness for purpose, zero defects and conformance to service specifications. It is difficult to define. By evaluating the effectiveness of IVE QA mechanisms on ensuring that service delivery matches / exceeds customer expectations, one of the implications of the present study is an exploration of the validity of the above conceptions of quality in the VE context. Specifically, this study will gather data on assessing the applicability of the

conceptions of fitness for purpose, value for money and continuous improvement. The major problem with the definition of quality is the existence of multiple purposes in the field, some of which are conflicting, such as vocational-specific versus whole-person development and industry-driven versus student-centred curriculum. This study will clarify whether the students and the employers hold conflicting expectations of the IVE service provision. Then we will be able to confirm if the fitness for purpose view applies to the vocational higher education.

Furthermore, the value for money view may be not applicable to vocational higher education as the specifications of quality standards may be unable to respond to rapidly-changing social and technological circumstances. For example, as the performance indicators at IVE were developed a few years ago and were not reviewed afterwards, this research will address the question of whether significant customer expectations are embedded in the quality framework, and thus will generate meaningful implications on checking the validity of this view in the VE context.

Besides, the idea of a process of continuous improvement is commonly used in post-secondary education. This approach emphasizes listening to the customers and motivating all the staff to respond (Sallis, 1996). However, as introduced in Chapter One, only a minority of staff were involved in the quality improvement process and were informed of such a critical change. These might have created quality gaps and produced dissatisfied customers. Despite much stress on meeting customer expectations and continuous quality improvement, the IVE(Tsing Yi) students and employers may be dissatisfied with service provision. This will serve as a good evidence to challenge the validity of the notion of a process of continuous improvement.

After defining the concept of quality and examining its applicability in the VE context and its relationship with the present study, the focus will then be shifted to its applications in the manufacturing industry and then post-secondary education.

Quality in manufacturing industry

The pursuit of quality is a crucial task facing all organizations. There is always a need to ensure that products conform to their specifications and give their customers satisfaction and value for money, particularly in the context of manufacturing industry (Sallis, 1993). In the 1900s, quality became an issue with the advent of industrialization. During that period, the production process was broken down into narrow and repetitive tasks to facilitate mass production. Such a strict division of labour needed a system of inspection (named quality inspection or control) to ensure that only those products meeting certain specifications could sell to the market (Elliott, 1988; Leask et al, 1992).

However, inspection is an after-the-event process though it can detect defective products. It is inevitably wasteful and expensive. In the 1930s and 40s, many organizations began to replace quality control with methods of quality assurance (QA), which was a quality system (Deming, 1986) with a well-defined production process and clear responsibilities for the workforce. With reference to Sallis (1996, pp.19-20), QA is defined as 'a means of producing defect and fault-free products', 'about consistently meeting product specification or getting things right first time, every time' and 'is made the responsibility of the work force ... rather than the Inspector, although inspection can have a role to play in QA'.

Deming (1986) has argued that, since the introduction of Total Quality Control (TQC) in the 1950s, Japan has been the leader of many world markets, including the

manufacturing and service industries. The idea of TQC was first suggested by Deming, who believed that the following measures were necessary and sufficient conditions to enable Japan to take the lead in finding out what customers want and expect, and in ensuring the production method and products attain the highest standards.

Though Deming's ideas emerged in the U.S. in the late 1940s, they only began to be widely used in the 1980s when U.S. companies started to become aware of the superiority and dominance of the Japanese products in a variety of markets. Since then, the notions of Total Quality Management (TQM) have been introduced in more and more industries.

According to Sallis (1996, pp.19-20), 'TQM incorporates quality assurance, and extends and develops it. TQM is about creating a quality culture where the aim of every member of staff is to delight their customers, and where the structure of their organization allows them to do so. In the total quality definition of quality the customer is sovereign... It is about providing the customer with what they want, when they want it... The perceptions and expectations of customers are recognized as being short term and fickle, and so organizations have to find out ways of keeping close to their customers to be able to respond to their changing tastes needs and wants.'

The above discussion emphasizes the main applications of quality to 'control', 'assurance' and 'improvement' in the manufacturing industry. In fact, in the beginning, the quality movement was largely confined to the industrial field. Its emphasis and application to educational institutions is more recent, and will be examined in the next sub-section.

Quality in post-secondary education

According to Barret (1996), 'a good quality college ... becomes one that produces satisfied customers' (p.70), and thus improving quality by understanding and responding to the needs of customers is very crucial. Though post-secondary education has been facing a growing need to improve its quality in the last two decades, there are few references in the literature prior to the 1990s. Literature suggests that most of such improvement work was focused on the areas of course evaluation and lifelong learning in post-secondary education (Craft, 1994; Jerome, 1995), and on the areas of effectiveness of school functioning, curriculum development and action research at the primary and secondary levels (Cuttance, 1995; Jerome, 1995; Murgatroyd et al., 1993). This research is related to QA and TQM, which are ideas derived from work in manufacturing industry. Many educators (Craig, 1998; Driscoll et al., 1998; Elliott et al., 1994; Spicuzza, 1992) were however reluctant to draw analogies between educational processes and the manufacture of industrial products. Yet, further to the introduction of quality policies and closer collaboration between the educational and industrial sectors like internship programs and teacher placements in industry, educational practitioners in the U.K., Australia and the U.S. have applied more and more concepts from industrial quality management to the management of education. In this part, the feasibility of applying two dominant quality management concepts (QA and TQM) to post-secondary institutions will be examined and its development in the U.K. and Australia will be used for the sake of clearer illustration.

In the U.K., since the mid-1980s, there were growing public concerns on quality and standards (Green, 1994). For example, in 1984 and 1988, formal quality assurance systems in universities, and polytechnics and colleges were introduced respectively. In 1993, the inspection framework for further education (FEFC 1993, p.7) set out the

elements of quality assurance, which included Policies on quality and its assurance and control; Establishment, monitoring and review of standards and target; Use of performance indicators; Regular reports including statistics and evaluative feedback from a range of stakeholders including students and employers, and Linkage with staff appraisal and staff development

This was a procedural approach that assumed quality standards were maintained by carefully following the pre-determined production processes. In Australia, the quality movement began in the early 1990s with the publication of the *Report on Higher Education: Quality and Diversity in the 1990s* (1991) and then the subsequent establishment of the Committee for Quality Assurance in Higher Education in 1993. At that time, QA in Australia was mainly assessed through internal systems of performance review like research productivity. Though some believe that QA has led to improvements in the achievement of students in UK and Australian institutions, many argue that the system is too bureaucratic and consumes too much resource (Sallis, 1996). Some also argue that quality improvement systems do not necessarily improve quality (Barret, 1996). In view of this, institutions which have aimed at going beyond performance indicators have begun to look seriously at TQM as a means to improve their service standards.

TQM is defined as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture. It can also be viewed as the means for achieving and maintaining excellence in quality education, which requires a change of culture (Sallis, 1996). TQM is thus not an alternative to quality assurance but a development. However, Sallis (1996) lists several barriers to TQM like fear of the unknown, fear of doing things differently, fear of trusting others, and fear of

making mistakes (p.44). In addition, some staff may acknowledge TQM philosophy but fail to contribute individually because either they do not know what is required or they are not motivated to participate. These fears are largely associated with ‘uncertainty’ and ‘threat’ that can be minimized by keeping the staff informed of any changes and involving them in the process as far as possible. However, as discussed previously, this is obviously not the case at IVE as only few staff members have been involved in the quality improvement process.

Operationalising a definition of Quality

Different scholars have tried to achieve a clear definition of quality and found it an enigmatic concept. Drawing on a number of definitions and related concepts discussed previously, Lumby (2001) describes two types of quality. The first one faces inwards and stresses matching and exceeding customer expectations. According to Downey et al. (1994), quality is an attitude best defined by the customer and this idea is supported by scholars like Deming (1991) and Lomax et al. (1996). The second one faces outwards and emphasizes meeting external standards such as those defined by professions or benchmarks set by the government. This idea was first introduced by Crosby who equated quality with ‘zero-defects’ and several widely used concepts like quality control and quality assurance were developed out of it. It is important to note that with reference to the Quality Assurance Framework and Performance Indicators of the VTC, quality is viewed as an efficient and cost-effective provision of vocational education that meets the needs of students and employers. This view of quality is very comprehensive and covers almost all areas of the five common conceptions of quality introduced previously.

In this thesis, quality is defined as meeting or exceeding the users needs and/or

expectations (Deming, 1991; Lomax et al, 1996; Lumby, 2001), which is developed out of the fitness for purpose approach. This is similar to the view of quality adopted by the VTC, except that the element of cost-effectiveness is missing.

2.2 Customer expectations

Post-secondary institutions have put much emphasis on the delivery of 'quality' service and stress that meeting stakeholder expectations and achieving their satisfaction is a basis for assuring and reflecting 'quality' (Green et al., 1994; Nadeau, 1993; Pace, 1984). It is clear that vocational higher education needs to serve the needs of various stakeholders like the main customers (like students and employers), the service providers (like the management group and the teaching staff), the funding bodies and so on (Garlick et al., 1993). This argument is supported by Craft (1994, p.171), who found 'no single customer but a multiplicity of customers and stakeholders' in higher education. In the present study, quality is defined as the customer's perceptions based on certain expectations on vocational education. Therefore, expectations become an important variable and knowing what the student and employer expect is the first step in delivering quality service. Studies on student and employer expectations of vocational higher education are core elements of this thesis and will be reviewed below.

Reviews of research on student expectations

Kuh & Pace (1999) have conducted extensive research on assessing the college student expectations and experiences since the 1980's. According to them, students have a clear understanding of their expectations at the time when they enter the college, and their expectations predispose them to seek certain kind of activities. As such, expectations not only shape students' decisions like how they spend their time in college, but also that these decisions will also influence the types of opportunities

students pursue. Thus, students' expectations are an important factor in shaping student success and satisfaction of their college life. Student expectations on the college activities items can be organized into eleven categories, namely library and information technology, student interactions with faculty members, course learning activities, writing experiences, campus programs and facilities, clubs and organizations, student acquaintances, scientific and quantitative experiences, topics of conversation, information in conversations, amount of reading and writing (Kuh, 1999). The College Student Experience Questionnaire (CSEQ) and College Student Expectation Questionnaire (CSXQ) have been widely used by post-secondary institutions in different countries and its validity and reliability have already been established (Kuh, 1999).

Besides, aiming to identify student expectations on their college life, Nadeau (1993) conducted a national-scale study in Canadian post-secondary institutions. In his study, 11,450 students were asked to rate 1,447 indicators under 117 criteria, covering six areas including students, programs, faculty, administrators, institutional environment and institutional context variables. The research provides a comprehensive range of college factors that are useful for designing the questionnaire of the student survey and is therefore mentioned here.

As examined at the beginning of this sub-section, there are close relationships between student expectations, their subsequent experiences and ultimately their overall satisfaction. A more extensive research into student satisfaction will be discussed in the later part of this chapter (p.54-61) and factors identified by those studies may also be viewed as items valued highly by students.

Reviews of research on employer expectations

The main purpose of this section is to explore the needs and expectations of employers. Although this raises the question whether education should primarily meet employers' needs / expectations (Foley, 1999; Tasker et al., 1994), there is a general agreement that their views are essential and have to be considered, particularly for the vocational education context as a result of more complaints about the decline in the quality of graduates, and the need for deep collaboration between industry and the post-secondary sector. Further discussion of the concept and research into employer expectations of post-secondary education will be examined below.

It is not surprising that knowledge, skills and personal qualities of the recruits are employers' top concern. Although some attributes are in common and similar, the terms used may vary. In response to such variations, it is useful here to introduce a simple conceptual framework called 'Learning Hierarchy' (see Table 2.1) for processing and interpreting vast research outcomes.

DEPTH LEARNING	Generic ←-----→Specific					
	Life	Employability			Job-specific	Technical / Technological
Key Skills		Academic	Personal management	Teamwork		
Knowledge	General Education e.g. understanding about own country, environmental protection				Vocational Education e.g. job-related theories and concepts	

Table 2.1 Typology of Learning: The Learning Hierarchy

(Adapted from The Conference Board of Canada, 1999)

As 'employability skills' are a key concept of this study, they have to be defined clearly. Here the term is taken to refer to a set of generic skills, attitudes and behaviours that employers look for when they hire new recruits and that they seek to develop in their

current employees. According to Drew et al. (1992), these skills are work-related, can be learnt and are transferable across a variety of jobs after the course. Gush (1996) found that employers tend to consider three aspects of the applicants, namely employability skills, intellectual abilities and aptitudes, in the selection process. Among the three categories, the first categories dominated.

Table 2.1 shows a continuum of skills and knowledge. It should be stressed that they are interrelated and not mutually exclusive of one another. For example, as the basis of employability skills, life skills can be viewed as ‘a set of skills which will save lives and that will be useful for the rest of one’s life ... (such as) self-knowledge, community awareness, listening and responding skills, knowledge of support structures and sources of help, as well as the ability to recognize and support peers or others in distress and despair’ (Outward Bound, 2002, p.4). This model was first introduced in May 1992 in Canada and has been wide spread to countries such as France, Norway, Spain, China, and Russia (The Conference Board of Canada, 1999). Its implications for this study are two-fold. Firstly, the scope and conceptual framework of most studies on employers needs / expectations are unclear. Common ground is essential for understanding and analyzing research outcomes. Secondly, it also provides a philosophical framework for addressing the confusion and uncertainty by defining different kinds of skills. Since the model is comprehensive and relevant, the employer survey in this study will definitely make reference to it.

Reviews of research findings on employer expectations

There are numerous studies dealing with employer expectations, a rather different field from that relating to students. In this part, research with special emphasis on the vocational education context will be selected for discussion. There is no doubt that

employers expect graduates to be equipped with a range of job-specific and technical / technological skills and knowledge upon completion of vocational education. Below are reviews of several international and local research studies, ranging from extensive research (like SSRC of HKU, 1997; RTRU of the Polytechnic of Wales, 1987; Taylor, 1990) to interviews with a few targeted samples (Roizen and Jepson, 1985; SCAN, Department of Labor, 1991):

In the US, the Secretary's Commission on Achieving Necessary Skills (SCANS), the US Department of Labor (1991) conducted in-depth interviews with jobholders and supervisors in 15 different industries. The report shows the importance of five competencies (i.e. those who can productively use resources, interpersonal skills, information, systems and technology), two sets of skills (i.e. communication and thinking skills) and a set of personal qualities (like responsibility, self-esteem, sociability, self-management and integrity). Similar to SCANS's results, a series of studies conducted in the US came up with these attributes, as did Jones (1996) of the Pennsylvania State University and Recruitment & Training Research Unit of the Polytechnic of Wales (1987).

Besides, in the U.K., Roizen and Jepson (1985) conducted 201 in-depth interviews consisting of 65 questions in 138 companies. As shown in the research report, a number of employers expected graduates to possess generic skills like numeracy, group work and presentation skills. In general, they were satisfied with the curriculum and graduates except the area of 'learning to learn'. A few years later, Taylor (1990) carried out a similar survey covering 200 large-scale companies in Liverpool. The report shows that employers generally look for graduates who are able to work as part of a team, are able to think independently, receptive to new ideas, are determined to succeed and are

willing to take on responsibility on behalf of others.

However, it is interesting to discover a contrasting view from research carried out by the Industrial Training Research Unit (ITRU, 1979). Some employers tend to employ graduates who 'don't follow instructions', who 'are over-confident for ability' and 'are in low ability range'. It must be stressed that such findings are unusual.

In Hong Kong, few research studies in this area could be found. As such, only two local projects carried out by the University of Hong Kong (HKU) and the VTC will be introduced here. To begin with, the Careers Education and Placement Centre (HKU) conducted a Graduate and Employer Curriculum Feedback Project in 1997. As to the employer survey, a total of 746 employers were approached, 161 of whom returned completed questionnaires. The response rate was only 22%. The report showed that in addition to good language and thinking skills, employers seek the following attributes in their new recruits: dedication, commitment, conscientiousness, sense of responsibility, integrity, leadership ability, pleasant personality, and willingness to work hard, and to do extra work.

Secondly, in the vocational education context, in response to the Reform Proposals for Education published by the Education Commission (2000) of Hong Kong, the VTC set up a working group in 2001 to promote the development of key skills for lifelong learning. Its prime objective was to solicit and disseminate contributions from employers and students about the key skills that the VTC / IVE students need when they enter the workplace in Hong Kong. Since this project is highly relevant to the data gathering instrument and analysis of the statistics of the employer survey, it will further be discussed in the methodology chapter.

In brief, though the research methods ranged from extensive research covering a wide range of samples to interviews with a few targeted samples, these studies aimed to assess employers' needs, expectations and degree of satisfaction with new recruits. The author found two major limitations of these projects. Firstly, none of them provided data on the relative importance of the attributes sought by employers. Secondly, there is a lack of a conceptual model to guide the research and/or analyze the findings. In view of such significance, the employer survey of this study will address these two areas. In addition to these, there are several implications of the studies reviewed (HKU, 1997; The Conference Board of Canada, 1999; SCANS, 1991; Taylor, 1990; VTC, 2001). Firstly, a list of available employability skills could enhance our understanding of the concept of employer satisfaction and was useful to the questionnaire design. These findings show that apart from technical knowledge and skills, personal qualities of the graduates are the main concerns of the employers (Raven, 1984; Roizen & Jepson, 1985). The above research findings reflect with a high level of consistency employers' expectation that graduates should possess the following personal attributes: effective communication, teamwork, flexibility, problem-solving skills and positive work attitudes. Secondly, as the above research studies were conducted in the vocational education context, items generated from them are particularly relevant to this study.

2.3 Meeting expectations

In the context of education, Sallis (1996, p.6) suggests four powerful obligations to achieve improved quality namely the professional imperative (the link with the professional role of educators), the moral imperative (the link with customers), the competitive imperative (the link with competitors) and the accountability imperative (the link with constituent groups). In the last two decades, more and more institutions

have to achieve quality so as to fulfil professional obligations, to provide customer-centred education, to compete for ‘good’ entrants and to respond to the requirements of funding bodies. All these have given rise to the need to respond to stakeholders and encouraged a quality improvement orientation (Coleman and Bush, 1994). This section will examine various dominant quality approaches in post-secondary education, in particular a critical examination of a student-centred approach and an industry-driven approach to assure education quality.

Dominant quality approaches in post-secondary education

Quality education could be measured in different ways, from different perspectives and in different contexts. Below are four main approaches developed out of various QA and TQM concepts:

Performance indicator approach. Developed out of the ‘conformance to requirement’ idea proposed by Crosby (1979), this approach conceptualizes quality as standards. In view of the problem in operationalizing ‘quality education’ and variations in customers’ expectations, some professionals tried to identify a set of so-called objective criteria and/or indicators for measuring it (Gray, 1990; Nadeau, 1993). For example, Nadeau (1993) conducted a national scale study and ended up with 117 criteria and 1,447 indicators of quality and excellence in Canadian tertiary institutions, covering six areas (students, programs, faculty, administrators, institutional environment and institutional context variables). This approach emphasizes precise operational definitions of each indicator, which should be observable and measurable. One criticism is that there is pressure for indicators to be objective and measured in terms of numbers but the validity of the scores of the school league tables are commonly questioned.

Excellence approach. This perspective tends to equate 'quality' with 'excellence'. In the U.K., the 'Times' adopted this definition and examined quality by assessing a range of dimensions in terms of their excellence (Nadeau, 1993). Take 'facilities' as an example, spending in library for per student was £ 700 in Oxford, £ 520 in Cambridge whilst for East London it was only £ 100 (Nadeau, 1993). In this respect, the quality of education in Oxford and Cambridge was seen to be better than that of East London. For another example, staff with a Doctor of Philosophy degree (Ph.D.) and their publication records were the measures of 'the excellence of academics'.

Student-centred approach. One dominant approach to quality education is to view it as defined by user requirements. For example, in the U.K., Green et al. (1994) highlighted that there was considerable research on students' views by course evaluators since 1980s. After the issue of the Further and Higher Education Act in 1992, course managers and educational policy makers took a further close look at this area. He also stressed that 'as customers of higher education, students are expected to have views about the quality of the services offered' (p.100-1). Take the University of Central England (UCE) as an example, an office called the Student Satisfaction Research Unit was established in 1988 to collect student perceptions of their educational experience.

This approach was, however, criticized on the grounds that students may hold different expectations on college life such as facilities and extra-curricular activities (Johnson, 1996). The management and teaching staff might face difficulties in responding to various segments of students simultaneously. However, some argue that this is not a problem at all since different students usually rate the same course differently. If this really occurs, the course evaluators need to find out why this is the case and improve it afterwards. Besides, this approach is also challenged by the view that teachers are the

custodians of knowledge and transmit it according to best professional practice. Yet, this argument does need much more exploration as a result of rapid changes in technological and societal circumstances. For example, up-to-date knowledge can be transmitted over the internet and students have been encouraged to learn from various sources. The third challenge to this approach is that education may serve more purposes than the 'particular' purposes that an individual student may have. For example, it may need to be future oriented and provide skills on new knowledge areas. This is particularly true of the vocational higher education courses since the lecturers are usually experienced professionals from the relevant industries. Most importantly, the courses are planned in accordance with surveys of market needs and manpower forecasts.

Stakeholders-centred approach. Further to the student-centred approach, Garlick et al. (1993) researched the perspective of different stakeholders. Indeed, many trends in post-secondary institutes have introduced the practice of responsiveness to a full range of stakeholders. In addition to the customers (i.e. students and employers), stakeholders include the management group, the academics and the funding bodies. These four groups may hold divergent views towards quality education.

However, similar to the critique of the student-centred approach, it is not surprising that different stakeholders held divergent views towards quality education. Failure in reaching consensus on the idea of quality is a major weakness of this approach (Johnson, 1996). However, as stated above, it need not be a problem. Finding out about customers' views provides data upon which the service providers can make more informed decisions. Knowing that there are divergent views enables better decisions to be made. For instance, course choices or delivery needs to be diversified based on needs

and expectations of different stakeholders. This point is highly applicable to vocational higher education since different subjects or teaching methods are essential to meet the needs of industry and students. Management does not have to provide what the customers want but they need to know what their customers want. In education, it is important to have this information so that the product can be delivered to meet both the customers' overt and covert needs (Gerson, 1993). And 'covert needs' means customers' needs that are beyond their immediate demands and found at a rather subtle level, which more experienced experts might be able to identify. Despite substantial support to consider the views of different stakeholders including those of the government and the faculties, this study intends to confine the stakeholders only to the students and employers as being clearly spelt out in the mission statement, the IVE(Tsing Yi) aims to 'provide **students** in Hong Kong with high quality vocational education and qualifications of international standards which are directly applicable to the requirements of Hong Kong's **employers** and the community' (VTC, 2004). This argument is fully supported by Craft (1993) who proposed to determine the choice of key customers by returning the emphasis to the institution.

In brief, the first two approaches try to examine quality by identifying and evaluating against a list of objective criteria while the last two approaches tend to view it as responding and meeting the needs of stakeholders. Compared with the stakeholders-centred approaches, the first two approaches are not fit for the vocational education context. Taking the excellent approach as an example, availability of world-class scholars, many reference books and expensive facilities does not necessarily represent quality teaching and learning process. If all institutions were judged by the standards of top universities, most would be continuously seen as 'poor' standard. In addition, in the field of vocational education, institutions usually develop

their own specialties and focus on vocational skills training. Some widely acceptable standards like qualifications and research output may not be applicable to the vocational training setting. The performance indicators approach is also not so applicable to the vocational education context because it fails to respond to the ever-changing social and technological circumstances. In fact, the needs of the manpower market change rapidly. And, the values and feasibility of developing objective standards in the context of education are still in controversy. At any rate, all of them highlight that education quality should be 'made of perceptions of student population, faculty, employers, government etc.' (Nadeau, 1993, p.61), and should be 'able to indicate how well the institution was moving towards its objectives' (Gray, 1990).

By referring to the QA system of the VTC introduced in the first chapter, it is clear that its development has been influenced by more than one of the four approaches examined above. Among them, the performance indicator approach has played the most significant part as the VTC's QA framework was drawn up with reference to the Baldrige Quality Program, and a system of clearly prescribed performance indicators is to be instituted and targets set for each annual plan cycle. Further to this, when we look into further details of the PIs like 'the Student/Trainee and Stakeholder Focused Results', the perspective of the key stakeholders are valued highly. Similar to the last two approaches, the QA system stresses responding to and meeting the needs of different stakeholders, in particular the students and the employers. By answering the research questions on the effectiveness of IVE's quality assurance mechanisms on matching customer expectations and ensuring customer satisfaction, the findings of the present study will at the same time be able to examine critically various quality improvement approaches centred on the student, stakeholders and performance

indicators.

Meeting student expectations

A student-centred approach has widely been adopted as a result of an increased drop-out rate of post-secondary students over time, an intense competition for students among institutions, an increasing emphasis on improving quality education and student satisfaction in the government policy, a proactive rather than reactive approach to environmental changes and so on (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Hinchliffe, 1991; Johnson, 1996; Larry, 1993; Nord, 1997).

In the US, the University of Syracuse introduced a new practice of ‘customer as king’ approach in order to attract and retain students. However, the idea of making students king is greatly challenged by some scholars. Barrett (1996), Coleman (1994) and Coleman and Bush (1994) question the practice of responding to customer expectations by listing different kinds of barriers. Below are some of their arguments:

First of all, in many institutes, administrative convenience takes priority over students’ needs. Secondly, teachers may not be committed to the principle of meeting student needs. For example, some staff members may see it as an unnecessary exercise, which is also a potential threat to their current situation and professional status (Hinchliffe, 1991). This argument is well supported by a common phenomenon of a tendency to maintain the status quo instead of making changes (Barrett, 1996).

In addition, some argue that a number of student expectations cannot be met by given time and resources. For instance, it is difficult to improve some environmental conditions quickly, such as the college location and size while some articulate that it

would be difficult to respond to different expectations of heterogeneous student backgrounds and changes are usually rapid (Johnson, 1996). Furthermore, Driscoll et al. (1998, p.60) state 'education holds a different set of assumptions and values that are involved in an instrumental exchange model'. In fact, other than the student interest, post-secondary education has to serve also the interests of society and maintain the quality of the programs. A number of scholars (Craig, 1998; Driscoll et al., 1998; Elliott et al., 1994; Spicuzza, 1992) insist that education cannot be viewed as a product or a business.

All the above explain why a group of teachers may be resistant to a student-centered change. Such resistance may be much stronger in Chinese cultures like Hong Kong and Singapore as a result of several deep-rooted Confucian beliefs such as absolute respect and unquestioning obedience to authority. Dimmock (2000) supports this by providing evidence that many Asian societies displayed the features associated with high power distance cultures, where greater inequalities of power distribution are to be accepted in family, schools and in the work settings. He elaborates this in the field of education: '...authority is rarely questioned. In school, teachers are respected, learning is conceived as passed on by the wisdom of teachers, and teacher-centred methods tend to be employed' (Dimmock, 2000, p.2). It is not clear whether the IVE students hold similar values towards the teacher-student relationship. This study may provide answers to this interesting area.

IVE QA mechanisms to ensure that the service matches with student expectations

According to the QAU, there are a variety of quality assurance mechanisms to ensure the service delivery meets / exceeds student expectations. According to the framework of performance indicators for VTC drawn up in 2001, the institute values highly

students' views, and so their views on 'teaching and learning', 'facilities and equipment', 'provision of information and support services', 'campus environment' and 'publicity and logistics' are collected at the end of their programmes as a measure of the effectiveness and usefulness of the programmes. However, the data collected is restricted to the senior management of the Council while the involvement of students and staff in the quality improvement process is rather limited. As a result, the extent of students' views being considered is unknown, and so is the extent of their expectations being met. In view of this, further investigation of the effectiveness of the quality assurance mechanism to meet student needs is required.

Meeting employer expectations

A substantial number of comments urge closer links between industry and post-secondary education; a need for more educational planning for industry's needs; and a need to emphasize improving employability skills and personal qualities in response to employers' feedback. Facing this trend, a small number of institutions still pay little attention to it. For example, some academics strongly disagree with putting the elements of employability skills into the formal curriculum (Drew et al., 1992; Roizem et al., 1985). On the other hand, a more extensive literature shows that many institutions have responded quickly to employers' expectations. Both views will be elaborated in the following paragraphs:

To begin with, a study covering 1334 academic staff of Birmingham Polytechnic in the UK reveals divergent views of respondents towards the teaching of employability skills (Drew et al., 1992). For example, a sizable minority of subject teachers felt antagonistic to these skills as a specific area in the curriculum by stating '*we do not need to teach this, the students pick it up as they go along*' and '*Students learn (particularly*

interpersonal skills) from their peers' (p.14-5). Several possible explanations of their reluctance include a lack of expertise to teach these; difficulties in finding time to include these in the already fully packed curriculum; and diffidence in motivating students to learn these skills. In addition, they are also very worried about the need to bring in 'experts' or facilitators from outside. One respondent writes '*our attempts to use specialists to teach ... have been disastrous*' (p.16). Despite a relatively few respondents, their concerns, worries and resistance have to be addressed.

On the contrary, a number of service providers hold another extreme view and have shifted to an industry-oriented approach (Gilbert et al., 1998; Page, 1998; Shaw et al., 1998). They showed enthusiasm about this and are committed to teaching it. This is reflected by the responses of '*... Employability skills can be major factors in a person's employment and promotion profile*' and '*For employment we regard that development of employability skills as more important than the subject of the degree*' (p.15). Other cases from the US, the UK, Australia and Hong Kong show how institutions react to the needs and expectations of employers positively.

In mid-1994, the University of North London in the UK set up a working group to identify and elaborate the key skills and personal qualities it wanted its graduates to possess. During the process, employers were the key party to be consulted. A year later, the institutional framework for change was established and was being overseen by a central Curriculum Steering group (chaired by the Deputy Vice-Chancellor, Academic Affairs and with representatives from each academic discipline). Shortly afterwards, modules consisting of six skill sets that employers generally look for (namely to act appropriately in the context of social and cultural diversity, to make ethical evaluations, to think critically and produce solutions, to manage themselves and relate to others, to

communicate effectively in context, and finally to seek, handle and interpret information) were written in terms of learning outcomes while a mapping exercise was also undertaken in order to determine the coverage of these key skills across programs of study (Page, 1998). According to her, Alverno College in the US has pioneered by involving staff in most of the above tasks. Both are clear examples showing how institutions as a whole to respond to the needs and expectations of the employers.

Besides, for the cases of the University of Wolverhampton and the Leeds Metropolitan, a number of transferable skills, like demonstrating numeracy, gathering, using information technology, organizing, communicating effectively, acting independently and working in teams, were identified which respond to the needs expressed by employers. These were also embedded in statements of expected learning outcomes (Gilbert et al., 1998). Other than an increasing emphasis on career education, this strategy to integrate the development of employability skills into the mainstream curriculum did reflect a growing concern about employers' views.

Another example is the decision of the VTC in Hong Kong to set up a working group in 2001 to promote the development of key skills for lifelong learning. Its prime objective is to solicit and disseminate contributions from employers and students about the key skills that the VTC / IVE students need upon their graduation. Eleven attributes, namely communication, managing information, using numbers, thinking and solving problems, demonstrating positive attitudes and behaviours, being responsible, being adaptable, learning continuously, working safely, working with others, participation in projects and tasks, have tentatively been developed. Staff training programs were offered to equip staff with such knowledge. The next step will be proposed curriculum reform to introduce key skills to all IVE students. As this is still a new idea in the local context,

views of Hong Kong employers have to be considered. Putting this into the context of a total quality initiative, it is an example of how the VTC works strategically and proactively to improve curriculum design in order to meet the changes in market demand and ultimately improve the quality of the service provision. Both the students and employers may benefit due to a possibility of increasing graduates' employability and producing workforces with key skills valued highly by the employers. However, some factors like the choice and delivery of key skills will affect the implementation and progress of this quality improvement initiative. This study explores whether the significant employability skills valued highly by the employers of IVE(Tsing Yi) graduates have been embedded into the quality system of the organization.

The above discussion aims at examining how different institutions including the IVE(Tsing Yi) respond to industry needs. Though the cases of the affirmative side (Gilbert et al., 1998; Page, 1998; Shaw et al., 1998) seem to be more than those of the opposition side (Drew et al., 1992; Roizem et al., 1985), it is hard to draw a conclusion as to what to teach and how to teach in respect of employability skills. In view of such significance and a lack of local research on these areas, it is expected that this study will address these debatable issues and review the progress of the related QA policy at the IVE(Tsing Yi). However, based on the above review, it is certain that the role of employers is increasingly valued, and their views and feedback have to be collected due to their relevance to the design and review of the curriculum.

2.4 Customer satisfaction

Facing a more competitive environment, many institutions have begun to assure quality by increasing customer satisfaction. Since the notion of 'satisfaction' is still controversial, it is widely used in the context of quality improvement and management.

In view of its complexity, a common understanding of what is meant by ‘customer satisfaction’ in this study is necessary.

Concept of Customer Satisfaction

Numerous studies on customer satisfaction in the leisure and marketing fields have been conducted. Peter & Wilson (1992) revealed that more than 15,000 academic and trade articles had been published in the preceding 20 years. Over the years, various scholars have developed different theories of customer satisfaction. Bowen (2001), for example, put much emphasis on three theories, namely equity, attribution and expectancy disconfirmation. Among them, the last one is most relevant to the present study. Based on this framework, Kaufman et al (1993) develop precise and practical definitions of ‘needs’ and ‘expectations’, which will be used in the present study. They view ‘needs’ as **gaps between desired conditions and actual / observed / perceived conditions**. Unlike ‘needs’, ‘**expectation**’ means one’s hope of gaining from the use of a product or service, or a belief that something will be derived from a product or service.

The above concepts inform the following model: As a result of psychological and personal needs, students and employers hold certain levels of expectations of services or products, whereas the degree of satisfaction is dependent on the extent to which student / employer needs and expectations are met. Despite variations in the two concepts, ‘needs’ and ‘expectations’ are used interchangeably in this study.

Measuring customer satisfaction

In developing measures for customer satisfaction or perceptions of performance, a necessary condition is to identify their domain. Our knowledge about what quality is

and how it is created has largely come from the manufacturing sector. Developing tools to measure service quality began in the 1980s when Parasuraman et al (1988) explored this through in-depth interviews of executives in four large-scale service firms. The data was supplemented with another set of data collected from customers of the four organizations. They then proposed a multifaceted framework and developed a questionnaire which measures both customer expectations and perceptions of performance on five sub-scales for a service experience, namely, the tangibles of the service experience, the reliability of the service experience over time, the responsiveness of the service providers to customer demands, the assurance or confidence level that is projected by the service providers and the empathy of the service providers to the unique needs of the customer. The questionnaire which developed from their research is called SERVQUAL. The SERVQUAL questionnaire is administered in two phases. The first one is the expectations battery which assesses the service expectations of the customer in terms of the five sub-scales while the second one is the performance battery which measures the customer's perception of the service experience afterwards. Their instrument measures the gap between customer expectations of excellence and perceptions of the actual service delivered. The instrument was first developed for the commercial sectors, but it has been used as a diagnostic tool in a wide range of service industries such as health care, tourism and education.

In post-secondary education, the tangibles are the physical facilities, reliability refers to the consistent quality of teaching, responsiveness is the flexibility of the institution in meeting diverse student demands, assurance is the confidence of faculty and staff, and empathy is the ability to sympathize with the concerns and problems of students. The present study aims to explore the quality of vocational education service from the

customers' perspective. Due to the relevance of work of Parasuraman et al, the student and employer questionnaires of this study will refer to the concepts and measurement of service quality introduced in the previous paragraph.

Reviews of research findings on student satisfaction

As stated above, viewing students as customers implies an emphasis on students' education experiences as a whole, where a variety of their concerns will be covered. This is unlike the more limited analysis of student satisfaction based on assessments of student response to course components and teaching methods. Green et al. (1994) argue that students' views on their educational experience were only of interest to a few educational evaluators before 1992. Thus, little research on students' perceptions of educational quality and factors affecting their education experience can be found. Several quantitative research studies about student satisfaction (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Nord, 1997; Pace, 1984) are reviewed below.

These studies focus on an analysis of satisfaction with their college experiences, from which students were asked to rate over a range of aspects of their college life, both inside and outside the classroom. A five-point scale ranging from very satisfied to dissatisfied was usually adopted. At the end of the questionnaires, students were commonly asked to give an overall rating of their college experiences by, for example, using the five-point scale. Instead, some researchers asked the penetrating question about whether or not a student would enroll in the college again given the opportunity to make the choice again. This also reflects the aggregate of their experiences. Those research studies suggested that students perceived teaching and learning, access to facilities, student support services, relationships with teachers and classmates, and

student organization as the main factors affecting their satisfaction with their education provision. Further details of these studies are as follows:

Green et al. (1994) initiated an action research project aimed at increasing student satisfaction at the University of Central England in the mid-1980s. Based on Parasuraman et al (1995)'s SERVQUAL framework introduced previously (p.51), this project combined the following three components: student-determined questions, satisfaction and importance ratings, and management information for action. Firstly, the research focused on the overall learning experience as defined by the principal customers (i.e. students) and covered a wide range of students' concerns. Secondly, besides their degree of satisfaction with various aspects of service provision, the research identified those areas which were most important for students. Finally, the areas in which students were dissatisfied were identified as priority areas for management intervention and action was subsequently taken.

Since the academic year of 1983/1984, the researchers surveyed over 1,700 students by asking them to rate the importance and satisfaction level of 44 items. These items, generated from focus group discussions, were regarded as 'indicators of satisfaction and dissatisfaction.' The results showed that prompt feedback of assignment and notification of changes to courses were rated as the most significant attributes among factors affecting their satisfaction level. With a shared research objective of meeting student expectations in a more efficient way, the research design of Green et al's studies is highly relevant to the instrumentation development of the student survey used in this study. However, the questionnaire used at the University of Central England had two major limitations, including too many questions involved and confusions between the two main dimensions (i.e. importance and satisfaction) as the UCE students were asked

to rate each of the 44 attributes in terms of its importance and satisfaction under the same section. These led to many unfilled items of the returned questionnaires and unsatisfactory response rate for the survey. In response to these criticisms, the instruments used in this study will consider putting the satisfaction rate and the importance level of the college attributes into two separate sections, and asking the respondents to choose the most important attributes rather than rating the importance of each attribute.

Eriguchi (1994) conducted a survey with 500 students at Yobiko, a private institution in Japan. Seven factors were identified as determinants of student satisfaction including the qualities of teachers, textbooks, teaching methods, size and location of the institute, counselling services, social life at the college, and tuition fees. In the U.S., Pace (1984) conducted an extensive study at the UCLA and a questionnaire consisting of fourteen scales with 165 items was mailed to 1,000 full-time students. He found that student union, clubs and organizations, dormitory or fraternity, art, music, athletic and recreational facilities, experience with faculty, student acquaintances, classroom learning and library service were important attributes of student satisfaction.

The findings of the research conducted by Eriguchi (1994) and Pace (1984) were meaningful to the development of the student questionnaire used here, in particular the provision of several key determinants of college student satisfaction. However, one of the common limitations of these two research papers was a lack of clear description of the research design and methods. In addition, though multiple regressions were used to identify the various significant factors affecting student satisfaction, the report failed to show the relative importance of those factors. In view of such significance, this study will address these gaps.

Ten year later, Larry (1993) replicated Pace's research covering 262 students at the Virginia Wesleyan College and discovered similar patterns with four additional factors identified. They were size of classes, faculty friendliness and helpfulness, relationship with administrators and career service. It should be stressed that this research only formed part of the student satisfaction project. Other than that, the project also included three complementary components:

- a graduate follow-up survey, a total of 576 graduates (out of 1,100 targeted samples) returned the completed questionnaires;
- a non-returning student survey: a total of 369 students (out of 741 targeted samples) returned the completed questionnaires; and
- an external assessment of the college environment from which 70 respondents were interviewed.

All these tried to evaluate if students or graduates were satisfied with their educational experiences and with college programs and activities. Larry's research design is appealing because both qualitative and quantitative techniques were employed to determine the level of student satisfaction, and triangulation of the data is possible. Second, a large group of non-respondents were followed up and external assessors were invited to look into the environmental factors. By doing so, a valid conclusion and a more comprehensive view of students' experience could be obtained. Yet, Larry's project design is not used here due to the time and resources constraints.

Aiming at assessing student satisfaction in a more reliable and valid manner, Freindlander et al. (1993) drew on the work of Kuh & Pace (1999) to develop a self-report survey instrument named the Community College Student Experiences Questionnaire (CCSEQ) in 1987. The questionnaire was shown to be an objective and

effective method of assessing students' college experiences as it was completed by more than 6,000 students of thirty-three community colleges for example the Santa Barbara City College in California. Besides similar findings to Pace and Larry's, this research found that the respondents tended to rate course-related activities like quality instruction, classroom environment and facilities as important or very important in relation to their satisfaction level. Due to a high relevance of this study in terms of the research objectives and target students, the present study will draw on part of the attributes and research design of Friedlander et al's study.

A few years later, Nord (1997) conducted a similar survey at the Oregon Institute of Technology and identified six key factors determining student satisfaction: college services or programs, course design and delivery, admissions and registration procedures, rules and policies, facilities and racial harmony. One of the most critical drawbacks of the survey report is that it failed to mention the sample size.

Table 2.2 summarizes the major findings of the above studies, along with the contexts from which the samples were collected. It is clear that there are variations in dimensions of student satisfaction found by different researchers. Despite disagreements between researchers, three common objectives of these studies are to identify a list of factors affecting student satisfaction, to measure student satisfaction with these factors, and finally to measure the importance of each of these factors in relation to the overall degree of student satisfaction. These are commonly viewed as part of the TQM process to identify areas for improvement and increase customer satisfaction. Other than that, this study also aims to evaluate the progress and effectiveness of the VTC's quality management systems on meeting customer expectations. In other words, despite an emphasis on delivering quality services to

students and employers by the institute, this study expects to identify gaps between the customers' expectations and the service provision, and to identify dissatisfied customers. If these really occur, that implies problems in the quality improvement mechanism.

Researchers / Context & Samples	Major findings	Drawbacks of the studies
Friedlander et al. (1993) 6,000 students of 32 community colleges, US	Course-related activities like quality instruction, classroom environment and facilities	--
Larry (1993) 262 students at the Virginia Wesleyan College, US	Student union, clubs & organizations, dormitory or fraternity, art, music, athletic and recreational facilities, experience with faculty, student acquaintances, classroom learning and library service, size of classes, faculty friendliness and helpfulness, relationship with administrators and career service	failed to show the relative importance of factors affecting student satisfaction
Green et al. (1994) University of Central England, U.K.	Prompt feedback of assignment and notification of changes to courses	too many questions involved and confusions between the two main dimensions (i.e. importance and satisfaction)
Pace (1984) 1,000 full-time students of UCLA, US	Student union, clubs and organizations, dormitory or fraternity, art, music, athletic and recreational facilities, experience with faculty, student acquaintances, classroom learning and library service	a lack of clear description of the research design, and failed to show the relative importance of factors affecting student satisfaction
Eriguchi (1995) 500 students at Yobiko, a private institution in Japan	Qualities of teachers, textbooks, teaching methods, size and location of the institute, counseling services, social life at the college, and tuition fees	a lack of clear description of the research design and methods, and failed to show the relative importance of factors affecting student satisfaction
Nord (1997) Oregon Institute of Technology	College services or programs, course design and delivery, admissions and registration procedures, rules and policies, facilities and racial harmony	No sample size found in the report.

Table 2.2 Summary of research findings on factors affecting student satisfaction

Regarding the research methodology, survey by questionnaire was commonly adopted probably because it could cover a wider range of samples in a cost-effective way.

Concerning the questionnaire construction or items generation process, different research methods were used for the above projects. Three common ones included adaptation from other available instruments (like Freindlander, 1993; Larry, 1993; Nord, 1997; Pace, 1984), focus group discussion (like Green et al., 1994; Eriguchi, 1994) and extensive survey (like Kuh & Pace, 1999).

The shared goal of the studies was to improve the education quality primarily based on students' viewpoints. All these give the student survey of this study a blueprint for operationalizing the theoretical concepts of student satisfaction as well as planning for the survey. For example, most of these research reports provide a range of college attributes (i.e. factors affecting student satisfaction). Secondly, as some were conducted in the vocational education context like those at the Oregon Institute of Technology (Nord, 1997) and the Virginia Wesleyan College (Larry, 1993), items generated from these studies are very useful for the student survey conducted for this study. The student survey used here will draw on these projects in particular because, like IVE, they were established in the delivery of vocational education in the fields of engineering, business and information technology. Upon completing the professional training, the graduates are expected to enter the work force.

Last but not the least, as no local research on this area could be found, this study is expected to generate data that are meaningful to the context of Hong Kong tertiary institutes.

Reviews of research findings on employer satisfaction

While there is much research into student satisfaction, there are few research studies on employer satisfaction. Probably as a result of the sensitivity of the related research

reports, the institutions tended to restrict the data for internal reference only. As such, only one project carried out by the University of Hong Kong (HKU) was found. In 1997, the Careers Education and Placement Centre of HKU conducted an Employer Curriculum Feedback Project. A total of 746 employers were approached, of whom 161 returned completed questionnaires, representing a response rate of 22%. The questionnaire design covered employers' feedback on the characteristics sought and found in HKU graduates; knowledge and skills sought and found; importance of curricular and extra-curricular factors; differences in characteristics displayed by HKU graduates from different faculties or disciplines; specific proposals for improvement, and general comments. The report showed that the graduates generally met employers' expectations except in an area regarding flexibility of work. For example, the employers revealed that the graduates tend to follow established procedures rather than trying to come up with new ways of doing things, which employers preferred.

Following the widening of access to post-secondary education, more opportunities for those who have completed secondary education have been provided and this has led to the unavoidable lowering of entry standards and increase in the staff-student ratio, which could lead to less satisfactory graduates and this has meant that the issue of quality plays a more important role in management's thinking (Lumby, 2001). For instance, in Hong Kong, there is a growing public concern about graduates' poor language abilities and soft skills. This study should compensate for the lack of published research on this area.

2.5 Summary: Discussion of the literature reviewed in relation to the conceptual framework and research design

Facing the trends of increased accountability and decreased resources, post-secondary institutions have to identify what services, educational experiences and graduate qualities lead to stakeholder satisfaction. In Hong Kong, as a result of the public funds invested, the Chief Executive demanded a thorough review of the education system at all levels, aiming to enhance the overall quality in education (Hong Kong Government, 2000). In response to this initiative, local institutions have made efforts to improve the service quality of the organization. Taking IVE as an example, a Quality Assurance Unit was set up as part of the VTC's Total Quality Initiative (TQI). Though some believe that QA has led to improvements in the stakeholder satisfaction in UK and Australian institutions (Green, 1994), many argue that the system is too bureaucratic and consumes too much resource (Johnson, 1996; Sallis, 1996). Some also argue that quality improvement systems do not necessarily improve quality (Gerson, 1993). As there is a lack of local research, the present study aims to evaluate the effectiveness of the current practices of the IVE quality assurance mechanisms on meeting or exceeding customer expectations.

After the implementation of the TQI in the year 2001, there are concerns about quality at IVE like an unclear process of developing the performance indicators and IVE quality assurance mechanisms, no access to the customer feedback reports by most of the IVE staff, and lack of staff training on the quality assurance mechanisms since its implementation. All these may lead to quality gaps and produce dissatisfied customers. The two main research purposes are to examine how far the service provision at IVE(Tsing Yi) matches customer expectations and the extent to which IVE's quality assurance systems ensure that service delivery matches or exceeds customer

expectations. In accordance with these focuses, the pertinent literature in the areas of ‘quality and quality in education’, ‘student and employer expectations’, ‘meeting customer expectations’, and ‘student and employer satisfaction’ were reviewed. The review not only provided useful information on the background for the study, but also confirmed the value and relevance of the research questions. in the model in figure 2.1 (p.62) provides a conceptual framework for this study:

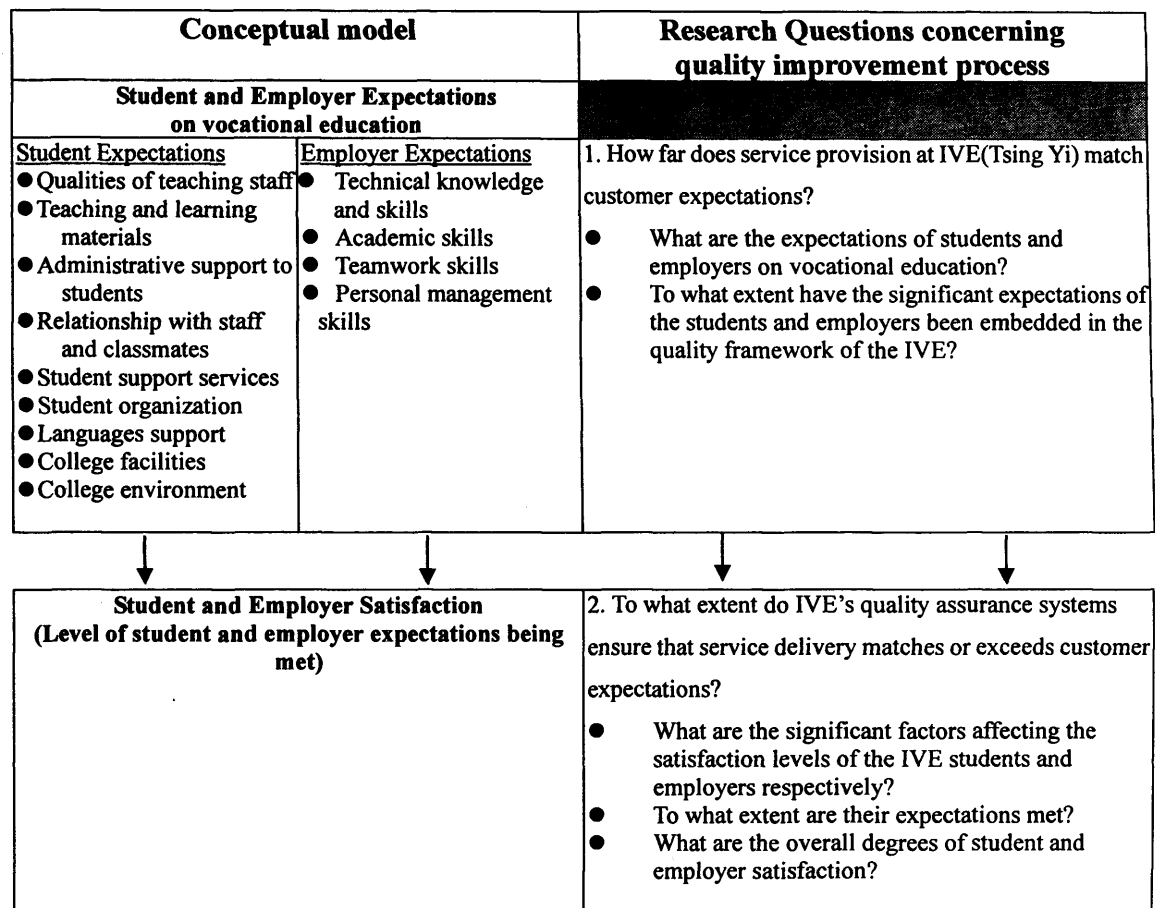


Figure 2.1 Conceptual model and research questions of the study

The above model shows the core components and steps to achieve quality, so as to understand what the customers are expecting and to what extent their expectations are met. A review of literature on students and employers' expectations / satisfaction has helped shape the research design and method of this study. To begin with, despite variations in the identified determinants of student satisfaction, most of the major

surveys found that students valued 'Teaching and Learning Materials', 'Qualities of Teaching Staff', 'College Facilities', 'Student Support Services' and 'Student organization' highly (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Nord, 1997; Pace, 1984). A total of nine dimensions are identified from the relevant studies and will be discussed one-by-one as follows. To begin with, 'qualities of teaching staff' was found to be one of the key student expectations, in particular in the context of vocational education such as the Oregon Institute of Technology (Nord, 1997), St. Barbara City College (Friedlander et al., 1993), University of Central England (Green et al., 1994), Virginia Wesleyan College (Larry, 1993) and Yobiko College (Eriguchi, 1995). These studies concluded that quality of students' experience would be improved if the teaching and training programs (Eriguchi, 1994; Larry, 1993) like orientation programs for new staff and staff development programs could be provided. Secondly, 'teaching and learning materials' was one of the important student expectations as revealed by the research conducted at the Oregon Institute of Technology (Nord, 1997), St. Barbara City College (Friedlander et al., 1993) UCLA (Pace, 1984) and Yobiko College (Eriguchi, 1995). Results further showed that students expected the materials to be stimulating and vocationally specific.

Thirdly, 'administrative support to students' was also another crucial student expectation (Green et al., 1994; Larry, 1993; Nord, 1997). Results also showed that students were concerned about the admissions and registration procedures, and notification of changes to courses. In addition, several studies revealed that 'relationship with staff and classmates' was another significant student expectation (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Pace, 1984). Larry (1993)'s research further suggested that provision of sensitivity training programs for teachers was useful to improve their self-awareness and skills in handling

relationship with students. Furthermore, a mentor system was also found to be effective in providing support to every student (Green et al., 1994; Pace, 1984). Labeling effects could be minimized under this mechanism when students sought assistance from their mentors.

Besides, 'student organization' and 'student support services' were other two key student expectations as supported by some research studies (Friedlander, 1993; Green, et al, 1994; Larry, 1993). For example, counseling service and financial assistance schemes were common support services valued highly by the students, Furthermore, 'languages support' was considered one of the key student expectations (Friedlander et al., 1993; Larry, 1993; Pace, 1984).

'College facilities' was another factor student valued highly, in particular those of the vocational education institutions (Friedlander et al., 1993; Larry, 1993; Pace, 1984; Nord, 1997). This dimension is important because the vocational education institutions highly emphasize technical training that can meet the labor market needs. The graduates are thus expected to equip with knowledge and skills of the advanced computing and laboratory facilities upon graduation. As vocational training institutes specialized at engineering and information technology, they should maintain a high standard of computing and laboratory equipment. Last but not least, few studies found that students valued 'college environment' highly (Friedlander et al. 1993; Nord, 1997). It was interesting to note that students were concerned about the size, cleanliness and neatness of their institutions.

In respect of the employer side, a considerable number of studies found that 'personal qualities' of graduates was the main concerns of employers (HKU, 1997; The

Conference Board of Canada, 1999; Raven, 1984; Roizen & Jepson, 1985; SCANS, 1991; Taylor, 1990; VTC, 2001). According to Drew et al. (1992), these qualities are work-related, can be learnt and transferable across a variety of jobs after the course. In this study, 'employer expectations' refer not only to the attitudes and behaviours but also a set of skills, that employers look for when they hire new recruits and that they seek to develop in their current employees (Gush, 1996; The Conference Board of Canada, 1999). From reviewing the literature on employer expectations and satisfaction, it is not surprising that although some attributes are in common and similar, different terms were used and there was no common ground to consolidate the various dimensions. In response to such variations, a simple conceptual framework was first introduced in May 1992 in Canada and has been wide spread internationally like France, Norway, Spain, China, and Russia (The Conference Board of Canada, 1999). This model was also adopted by the VTC and suggests that in addition to the 'technical skills and knowledge', there are three key dimensions namely the 'academic', 'personal management' and 'teamwork' skills. Its implications for this study are two-fold. Firstly, the scope and conceptual framework of most studies on employer needs / expectations are unclear. Common ground is essential for understanding and analyzing research outcomes. Secondly, it also provides a philosophical framework for addressing the confusion and uncertainty by defining different kinds of skills. .

By adopting this model, the author could analyze the employer survey findings reviewed previously. For example, two research projects found that the 'personal management skills', 'academic skills' and 'teamwork skills' were found to be the most important employer expectations (Conference Board of Canada, 1999; VTC, 2001). Among the three dimensions, the personal management one was the most significant one. However, the pattern was in contrast to those of the other three research conducted

by the Social Sciences Research Centre, HKU (1997); SCAN, Department of Labor, U.S. (1991) and Taylor (1990) where the 'technical skill and knowledge' and 'teamwork skills' were found to be valued most highly by the employers. In view of such contradictions and a lack of local research, this study will provide answer to this grey area.

This study is likely reveal some gaps between customer expectations and the IVE service provision, which means that students and employers may not be satisfied with certain items of the service. As shown in the conceptual model of the study (Figure 2.1), one of the research questions is to assess the extent to which the significant expectations of students and employers are met. Similar to this research, many studies have also attempted to analyze user satisfaction in terms of both expectations that relate to certain important attributes and judgments of the attribute performance (Chapman, 1993; Green et al., 1998; Martilla & James, 1977). A management tool called Importance-Performance Analysis (IPA) has been proven to be useful for answering this question. IPA has been widely used to identify the strength and weakness of a brand, a product, a service and a retails establishment in various industries in recent years (Chapman, 1993). In U.K., Green et al. (1994) adopted this approach to improve the education service quality and surveyed over 1,700 students at the University of Central England in Birmingham by asking them to rate the importance and performance of 44 institution items. A list of intervention priority like 'prompt feedback of assignment' and 'notification of changes to courses' (i.e. items that the respondents considered very important but were not so satisfied with) could then be made easily. For more details of its applications, please refer to Chapter 3 (Section 3.5 Data-processing and analysis). The findings of the present study will thus yield additional insight into the future direction of quality management especially in that of the vocational higher education.

For example, by relating the findings to the existing QA mechanisms such as the review of performance indicators and measures to assure quality, this study will contribute to improving service delivery, strengthening the system and the related staff development plan.

Conceptually, the issue of a high quality education is one that has confounded educators in many countries. However, quality in education is an elusive concept. According to Harvey and Green (1993), there are five common notions of quality in education, namely exceptional, fitness for purpose, value for money, perfection and continuous improvement. As there is a lack of research on examining the applications of these conceptions to the vocational higher education field, one of the research focuses is to fill this gap. This study will provide information on assessing the applicability of the conceptions of fitness for purpose, value for money and continuous improvement. The major problem with the fitness for purpose view is the existence of multiple and conflicting customers' needs. This study investigates whether the students and the employers hold conflicting expectations of IVE service provision. That will confirm whether this view applies more widely to vocational higher education. Secondly, the value for money view has a major weakness in its application to vocational higher education owing to its failure to respond to rapidly-changing social and technological circumstances. If this study reveals that the significant customer expectations have not been included in the quality framework, this will serve as a powerful evidence to support this argument. Thirdly, the idea of a process of continuous improvement emphasizes listening to the customers and motivating staff at all ranks to respond. However, as highlighted previously, few staff members were involved in the quality improvement process and were prepared for facing such a critical change. These may have created quality gaps and produced dissatisfied customers. Despite much stress on

meeting customer expectations and continuous quality improvement, this study may find that the students and employers are dissatisfied with some of the service provision. This is good evidence to challenge the validity of the notion of a process of continuous improvement.

The contribution of this research to the field also lies in systematically assessing the key attributes of the views of students and employers. For example, insight into their expectations will form the basis of developing strategies for marketing the programmes to the potential customers (i.e. senior secondary students) and the end users (i.e. employers). Further, the methodology adopted in the present study involves developing measures of quality. As such, this study may add to what the formal processes offer and break new ground in quality assurance. As reflected by the related literature, the links between customer expectations of vocational education, their satisfaction and quality assurance have never been developed or tested in the Hong Kong context. In addition, the study will also generate fruitful data for examining various quality improvement approaches centred on the students, stakeholders and performance indicators. For example, though more and more institutions have adopted a student-centred approach (Eriguchi, 1995; Green et al., 1994; Nord, 1997), a number of scholars challenge such practice (Barret, 1996; Coleman, 1994; Bush et al., 1994; Garlick et al., 1993; West-Burnham, 1992). At the same time, closer links between industry and vocational education are also debated. Though the cases of the supporting side (Drew et al., 1992; Gilbert et al., 1998; Page, 1998) seem to be more than that of the opposing one (Roizem et al., 1985), it is hard to draw a conclusion as what to teach and how to teach employability skills. In view of such difficulties and a lack of local research, this study will contribute to the understanding of these grey areas.

CHAPTER 3

METHODOLOGY

The present study aims to investigate concerns about quality assurance mechanisms at IVE, and to review the operation and effectiveness of quality management procedures and whether service improves as a result of. Below are two main research questions.

- 1) How far does the service provision at IVE(Tsing Yi) match customer expectations?
- 2) To what extent do IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations?

To answer the research questions stated above, a number of quantitative and qualitative methods, such as survey, case study, observation and document analysis, are feasible. Under the given conditions and constraints, a quantitative approach (survey by questionnaire) was adopted. Below is a discussion of the epistemology, and choice of the paradigm and approach.

The positivist and interpretive paradigms are dominant. The term 'positivism' was coined by August Comte in the 1820s and then developed by John Stuart Mill. Comte believed that social problems could be solved by applying the methods and logic of the natural sciences (Leszek Kolakowski, 1972; Drew et al, 1996). Based on Comte's idea, Mill further proposed 'a predictive and scientific (goal)... that would develop out of history and make possible the use of behavioural observations to project generalized patterns of human interaction' (Drew et al, 1996, p.20-21). On the other hand, a prominent figure of the interpretative paradigm and the phenomenological school was Bretano who founded a main idea, that of 'intentionality' or 'aboutness' of

conscious activity. It refers to our consciousness about something, representation (i.e. awareness as it appears to us) and judgement (i.e. evaluative, true or false, good or bad, etc.) and affectivity (i.e. emotive, love or hatred, interested or bored, etc.) (Natanson, 1973). Edmund Husserl, pupil of Bretano, rejected much of Bretano's work and introduced a more comprehensive concept called 'Transcendental idealism'. He believed that a study of subjectivity would give meaning to and put into perspective the knowledge based on objective empirical principles (Natanson, 1973; Wright, 1996).

The research problems mentioned above are best approached within the positivist paradigm, and the main purpose of this part is to justify the choice of the positivist one for the present study in terms of its ontology and goal, object of inquiry, and research methods. To begin with the ontology and goals, positivists presume that one reality exists and researchers can discover 'reality' within a certain realm of probability (Mertens, 1994, p.8-9). Based on this ontological assumption, the nature of research guided by this paradigm is primarily explanatory (Cohen and Manion, 1994) and the ultimate goal is to identify causality (Easterby-Smith et al, 1994). In contrast to positivism, the interpretive paradigm views reality as constructed (Mertens, 1998; McGraw, 1997) and research conducted within this paradigm is usually exploratory in nature. The primary goal of this approach is 'an understanding of the way in which the individual creates, modifies and interprets the world in which s/he finds himself or herself' (Cohen & Manion, 1994, p.8). Though the interpretive paradigm may enable the researcher to probe perception of the slippery concept of quality, the positivist paradigm is thus chosen for this study as the major concern is to understand, to explain, and to some degree predict customer satisfaction with vocational education. In addition, the researcher believes that nothing is self-evident,

and any change in perceptions in college satisfaction or behaviours could be proved and could be represented in measurable terms.

Second, the object of inquiry within positivism emphasizes fact and knowledge derived from experiences (Easterby-Smith et al., 1994). On the other hand, research in the interpretive mode usually seeks to understand not just what people do / experience, but how they derive 'meaning' from what they are doing (Easterby-Smith et al, 1994). Thus, much interpretive research focuses on the nature of discourse in various communities of practice. As stated previously, the objects of inquiry for this study are customer expectations and their satisfaction. These are largely derived from experiences, in particular the sensory. However, the perspective to obtain such information is undeniably and unavoidably simplified for example during the process of operationalizing the definitions and indicators of these concepts.

Third, in respect of the research approach, since positivists borrowed ideas from natural science, 'experimental or quasi-experimental methods' are usually associated with the positivistic paradigm. On the other hand, qualitative methods such as long interviews and document reviews are predominant in the interpretive paradigm. As the level of customer satisfaction is the major concern of the present study, a quantitative research method to investigate the sensory experiences is more appropriate. The researcher will follow a strictly standardized procedure to collect the data, for example using questionnaires with fixed-response format to avoid subjectivity and bias. This is consistent with an assumption of the positivist paradigm that there are patterns 'out there' (i.e. knowledge) which can be measured and data about these patterns can be collected in a systematic way. However, by doing so, the research may be decontextualized and this is one of the limitations of this study.

In brief, the main purpose of the study is to examine how far the service provision at IVE(Tsing Yi) matches customer expectations and the extent to which IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations, and it is explanatory rather than exploratory. What the researcher intends is to investigate and chart the matches and mismatches among stakeholders' expectations in vocational education. In other words, the study tries to produce data based on real-world observations, and is thus empirical. More explanations of the choice of the positivist paradigm adopted by the present study and the issues relative to the validity of the investigation will be examined in the research design section. Following an overview of the research paradigm, it turns to a discussion of the research design to guide the whole research process and details of the research methodology.

3.1 Research Design

Research design is viewed as 'an architectural blueprint', which guides the planning for assembling, organizing and integrating data into useful information for analysis (Merriam, 1988). The research design of this study is a survey using questionnaires. From identifying a list of expectations from two major customers (i.e. employers and students), the research aims to investigate and chart the matches and mismatches between stakeholders' expectations in vocational education. By obtaining this useful information, strategies to fulfil their expectations or improvement work may be considered.

The survey will be adopted as the primary research approach due to its economy, speed, lack of interviewer bias and the possibility of anonymity (Scott, 1996; Cohen

& Manion, 1994; Drew et al., 1996; Rubin & Babbie, 1988). More specifically, it contains several unique strengths. First, as an inquiry in the social context, the emphasis tends to be on producing data based on real-world observations. It is thus inclined to be empirical rather than theory-driven though the research focus is usually derived from the latter (Scott, 1996; Drew et al., 1996). Survey research is usually associated with wide coverage of representative people or events. Given such coverage is suitably wide and inclusive, findings of a good survey research will result in better generalizability (Rubin & Babbie, 1988). The survey approach is likely to generate a large volume of quantitative data that can be subject to statistical analysis (Cohen & Manion, 1994; Scott, 1996). Finally, relative to experiments and ethnography, survey research is cost-effective and able to generate instant results (Cohen & Manion, 1994; Drew et al., 1996; Rubin & Babbie, 1988; Scott, 1996).

According to Drew et al. (1996, p.145), survey research ‘involves asking questions of a sample of individuals who are representative of the group or groups being studied’.

Best & Kahn (1986) defined questionnaire as a data-gathering instrument through which respondents answer questions, or respond to statements in writing.

The choice of a questionnaire for the first part of this research was based on its appropriateness for the purpose of the inquiry, the population on which it is focused, and the resources available (Cohen & Manion, 1994). In this study, the purpose of the investigation is to analyze customers’ expectations in order to make recommendations about how to fulfil them at the IVE(Tsing Yi) while the target populations are the students and employers of the Tsing Yi campus.

A postal or self-administered questionnaire was used because questionnaires can be distributed to a large number of people and reach individuals whom it would be

difficult to interview like scattered or far-away employers and graduates. Furthermore, more time is allowed for respondents to consider their answers. More accurate and thorough responses will ultimately be obtained (Scott, 1996; Cohen & Manion, 1994; Drew et al., 1996; Rubin & Babbie, 1988).

The disadvantage may be the lack of clarification and possibility of further probing into the issue. There might be problems arising from self-reports. There is little control over the subjects' responses and this could lead to a biased or atypical sample (Drew et al., 1996). In order to reduce these limitations, focus group discussions and piloting are conducted to improve the design of the instruments.

Apart from the threats to internal validity mentioned above, this study has a cross-sectional design (i.e. to draw samples from the population at one time), which contains limitations compared to longitudinal research (i.e. to collect data more than once from the same sample of respondents). First, the expectation and satisfaction levels of the respondents might change over time and drawing data at a particular period of time might result in overlooking some factors. Taking the student survey as an example, students of different years might have various concerns over the college attributes. A better design might be to collect data from students from different years and/or to carry out a longitudinal study (i.e. to collect data from a particular group of students periodically during their three years college life). By doing so, both within-group (i.e. changes of the same cohort of students overtime) and between-group (i.e. comparisons between students from different years) comparisons became possible.

Second, though cross-sectional designs are suited to the descriptive and predictive

functions associated with correlational research, they fail to determine the direction of change for individual respondents (Shaughnessy & Zechmeister, 1997). For this study, since the primary objective of the student and employer survey was to identify a list of factors affecting their degree of satisfaction, in order to make recommendations about improving the service quality and its mechanisms, cross-sectional design was considered acceptable.

3.2 Sampling

In view of the time, resources, and accessibility constraints, it is:

‘always not possible or practical to obtain measures from all the individuals in the population. Researchers endeavour therefore to collect information from a smaller group or subset of the population in such a way that the knowledge gained is representative of the total population under study’ (Cohen & Manion, 1994, p.87).

Clustered sampling is used in the student and employer survey of this study because the populations of both parties are large and widely dispersed. By cluster sampling, the researcher can select a particular cohort of students and employers, and conduct the surveys to a certain proportion of them (Cohen & Manion, 1994).

Research Population

The population that is the focus of this research is the graduates and the employers of the IVE (Tsing Yi), which is a government-funded vocational education institution that was opened in 1993 to deliver Higher Diploma courses in engineering, business and software engineering. Upon completing three years professional training, graduates from the five academic departments including ‘Business Services Management’, ‘Construction’, ‘Engineering’, ‘Information and Communications Technology’ and ‘Multimedia and Internet Technology’ get jobs in industry, commerce and the public sector. The breakdowns of three populations and samples are summarized in the table below:

Target groups	Population	Samples
Students	3,000 IVE(Tsing Yi) students	Clustered sampling of 800 graduating students in 2001/2002
Employers	600 employers	Clustered sampling of 200 employers who had used the employment services in the academic year 2001/2002

Table 3.1 Summary of research population and samples

Samples

The samples outlined in Table 3.1 are described in more detail below followed by a discussion of the principles used to choose these samples:

Students

A clustered sampling method is used for the student survey from which its population is the 3,000 IVE(Tsing Yi) students in the academic year of 2001/2002. According to Wiersma (1993), clustered sampling is a procedure of selection on which the unit of selection, called a cluster, contains two or more population members. This is useful in situations where the population members are naturally grouped in units that can be used conveniently as clusters. In this case, the cluster of 800 graduates who had completed their full-time Higher Diploma (HD) courses was chosen.

Selection bias might occur for the student survey as the sampling frame contained only the graduates of a particular year (Drew et al., 1996; Shaughnessy & Zechmeister, 1997). This could be improved by drawing samples also from those who graduated previously. However, due to an unavailability of a full mailing list, this was not possible and sampling of a particular cluster (i.e. the graduating students in 2001/2002) became the next best alternative. It is assumed that different batches of graduates are more or less the same in terms of their expectations and degree of satisfaction with the college, however, strictly speaking the findings of the survey apply to the particular year group surveyed only.

Employers

Employers of the IVE graduates were the target sample of the employer survey. Since the graduate employment service is provided by the Student Affairs Office (SAO) of each individual campus, a mailing list of employers who hired the graduates of IVE(Tsing Yi) is available and contains 600 employers. Similar to the student one, the clustered sampling method is used for the employer survey from which a sample of 200 employers from those who had used the service in the academic year 2001/2002 was chosen.

Selecting representative samples of the student and employer survey

This research will collect data from: i) the students who are members of the IVE and are on the Tsing Yi campus, and ii) the employers of the IVE(Tsing Yi) graduates. As a single researcher without additional funding and manpower support, it was hard for the author to collect data from all of them. As a result, samples were constructed to be representative of the whole population. 'How to draw a representative sample' becomes an essential question to address and will be discussed below.

One crucial factor to be considered relative to sample size is the absolute size of the sample, which depends on the complexity of the population and the research questions being investigated (Drew et al, 1996). The literature suggests that whatever the theoretical issues, the simple fact is that surveys and samples are frequently used in small-scale social research involving between 30 and 250 cases (Drew et al., 1996; Rubin & Babbie, 1988). More specifically, two further factors have been taken into account while determining the sampling method and sample size of this study (Cohen & Manion, 1994; Drew et al., 1996; Fuller et al., 1995; Rubin & Babbie, 1988; Scott, 1996; Verma et al., 1999):

First, all aspects of relevance to the research question have to be covered and included in the samples (Fuller et al., 1995). This is to ensure that those selected are appropriate and able to provide information on the research areas. In this study, students and employers could definitely provide data for assessing customer expectation and satisfaction as they are the key stakeholders of the college.

Second, there has to be some balance between the proportions within the sample and the proportions that occur in the overall population being investigated (Scott, 1996; Cohen et al., 2000). In this study, with a sufficiently large number of respondents, it is expected that the student and employer survey will draw similar compositions of sample relative to that of the whole population. According to Anderson (1990) and Verma et al. (1999), a minimum of 217 and 277 respondents are needed for a population of 500 and 1,000 respectively at a 5 per cent level of tolerable error (or termed as at a 95% confidence level).

As mentioned before, given resource constraints (for example time and money), there is a tendency to choose the minimum sample size that is feasible in light of the level of accuracy demanded of the findings (Rubin & Babbie, 1988). To conclude, two factors (how representative the sample and how relevant to the research question) were considered while determining the sample size. In this study, based on these principles the target samples of the student and employer survey would be 800 and 200 respectively.

3.3 Instrument design and piloting

The research consists of two parts, namely survey by questionnaire of students and survey by questionnaire of employers. To ensure a high level of validity and reliability, the data-collection instruments were developed in the following phases: i) conducting an extensive review of the literature on student satisfaction / expectations, employer satisfaction / expectations and strategies to meet their expectations; ii) generating a pool of items on student expectations; iii) purifying measures by assessing the items by a panel of experts and conducting focus groups with target respondents; and iv) carrying out the pilot study.

Design of questionnaire on assessing student satisfaction with IVE(Tsing Yi)

Most of relevant studies found that students valued items related to teaching and learning materials, qualities of teaching staff, college facilities, student support services and student organization highly. In view of a lack of research attempting to link the above factors to the overall degree of student satisfaction or relating them to a wider context of quality constructs or framework, this study aims to fill this gap. A preliminary data-collecting instrument on assessing student satisfaction in English was developed according to the research questions and literature review. This instrument contained four sections. Section 1 consisted of nine questions on the demographic background while Section 2 was designed to measure students' perceptions of their college life. Section 3 was concerned with respondents' views about the importance of various attributes of the second section and finally, Section 4 with only one question was set to examine their overall level of satisfaction with the IVE(Tsing Yi). Below are details of its development.

Generating a pool of items on student expectations

The instrument used for this study was developed according to several quantitative research studies about student expectations and satisfaction (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Kuh & Pace, 1999; Larry, 1993; Nord, 1997; Pace, 1984). As the college attributes are the core theme of the student survey, this part will focus on the development and refinement of a list of items on student expectations (i.e. Section 2 of the questionnaire).

As shown in Table 3.2, based on the literature review, a total of 87 items were developed to cover ten components in student expectations: a) Qualities of teaching staff, b) Teaching and learning materials, c) Administrative support to students, d) Relationship with staff and classmates, e) Student support services, f) Student organization, g) Languages support, h) College facilities and, i) College Environment.

Item No.	Item	Source
	<u><i>Qualities of teaching staff</i></u>	
S1	Teaching staff are readily available outside classroom	Eriguchi (1995); Friedlander et al.(1993); Larry (1993)
S2	Teaching staff are skilful in conducting lectures	
S3	Teaching staff are friendly	
S4	Teaching staff are helpful	
S5	Teaching staff are encouraging	
S6	Teaching staff are fair	
S7	Teaching staff are knowledgeable in their field	
	<u><i>Teaching and learning materials</i></u>	
S8	The assessment mechanism is clear	Eriguchi (1995); Friedlander et al.(1993); Green et al. (1994); Kuh & Pace (1999); Larry (1993); Nord (1997)
S9	Instruction is student-centred	
S10	Teaching methods can arouse students' interests	
S11	The curriculum is up-to-date	
S12	The syllabus is up-to-date	
S13	Teaching materials are relevant	
S14	Teaching materials are up-to-date	
S15	The course design is challenging	
S16	The course design is stimulating	
S17	The course is vocationally specific	
S18	The assigned readings are relevant	
S19	The assignment helps to integrate ideas from various sources	
	<u><i>Administrative support to students</i></u>	

S20	The college information received before enrolling is sufficient	Green et al. (1994); Nord (1997)
S21	The college information received before enrolling is accurate	
S22	The application and registration procedure is organized	
S23	Administrative procedures are considerate	
<u>Relationship with staff and classmates</u>		
S24	Relationship with those whose interests are different from yours is developed	Kuh & Pace (1999); Larry (1993)
S25	Relationship with those whose family background is different from yours is developed	
S26	Relationship with those whose race or ethnic background is different from yours is developed	
S27	Relationship with those whose philosophy of life or personal values are different from yours is developed	
S28	Relationship with those whose religious beliefs are different from yours is developed	
S29	Relationship with those whose political opinions are different from yours is developed	
S30	Teaching staff are willing to discuss ideas for the assignment	
S31	Teaching staff are willing to discuss career plan and ambitions	
S32	Teaching staff provide comments and criticisms about the academic performance	
S33	Teaching staff provide support on research project	
S34	Teaching staff are willing to discuss academic program or course selection	
S35	Relationship with students / classmates are good	
S36	Relationship with teaching staff are good	
S37	Relationship with administrative staff are good	
<u>Student support services</u>		
S38	The counselling service meets your needs	Eriguchi (1995); Larry (1993); Nord (1997); Pace (1984)
S39	The career advisory service meets your needs	
S40	Room for self-development is provided	
S41	The medical service meets your needs	
S42	A range of financial assistance schemes are available	
S43	A wide range of supporting services are provided	
S44	A wide range of PE programs are provided	
S45	The library service meets your needs	
S46	Main textbooks are available at the college bookstore	
<u>Student organization</u>		
S47	SU activities meets your needs	Larry (1993)
S48	Departmental society meets your needs	
S49	Clubs (e.g. music and sports clubs) can cater your needs	
<u>Languages support</u>		
S50	Courses on strengthening language ability are effective	Kuh & Pace (1999); Larry (1993)
S51	Self-access facilities for improving language standards are adequate	
S52	Consultations on writing skills are offered	
S53	Support on writing a report is provided	
S54	Advice and help on improving writing is provided	
S55	Books or manual about writing styles, grammar are available	
<u>College facilities</u>		
S56	The athletic facilities are of great variety	Friedlander et al. (1993);

S57	Computing facilities are adequate and accessible	Kuh & Pace (1999); Larry (1993)
S58	The laboratory facilities are of high standard	
S59	The computing facilities meet your needs	
S60	The classroom facilities are of high quality	
S61	Art exhibit / gallery or a play, dance, or other theatre performance are of high quality	
S62	Musical event and facilities meet your needs	
S63	A campus lounge is of high quality	
	<u>College environment</u>	
S64	Opportunities for discussing current event in the news are provided	Eriguchi (1995); Friedlander et al. (1993); Green et al. (1994); Kuh & Pace (1999)
S65	Opportunities for discussing social issues are provided	
S66	Opportunities for discussing different lifestyles, customs and religions are provided	
S67	Opportunities for discussing the ideas and views of writers and historians are provided	
S68	Opportunities for discussing the arts are provided	
S69	Opportunities for discussing science are provided	
S70	Opportunities for discussing computers and other technologies are provided	
S71	Opportunities for discussing social and ethical issues related to science and technology are provided	
S72	Opportunities for discussing the economy are provided	
S73	Opportunities for discussing international relationship are provided	
S74	The classroom environment is comfortable	
S75	The physical environment is fair	
S76	The college environment is caring	
S77	The campus is clean and neat	
S78	The college size is optimal	
S79	The college location is convenient	
S80	The college has a good reputation	
S81	The college environment emphasizes on developing academic, scholarly, and intellectual qualities	
S82	The college environment emphasizes on developing aesthetic, expressive and creative qualities	
S83	The college environment emphasizes on developing critical, evaluative and analytical qualities	
S84	The college environment emphasizes on developing an understanding and appreciation of human diversity	
S85	The college environment emphasizes on developing information literacy skills	
S86	The college environment emphasizes on developing vocational and occupational competence	
S87	The college environment emphasizes on developing the personal relevance and practical values of your course	

Table 3.2 A list of items on student expectations derived from the literature review

Purifying Measures

A pool of 87 items was submitted to a panel of experts for assessment of the content, language, and relatedness with the corresponding concepts. The panel consisted of two faculty members and three professional staff working at post-secondary institutions. Experts were asked to evaluate each item for relevance on a scale of 1 (poor) to 5 (good). Items that four of the five experts judged as 4 or above were considered content valid items within the domain of interest. Upon the recommendation of the panel, 26 items (S18-19; S24-34; S61-63; S64-73) were dropped.

In order to obtain feedback on 61 remaining items, ensure the comprehensiveness of these items, especially those unique to the IVE (Tsing Yi) and relevance to the local context, two focus groups consisting of 20 students (from different years of study) were conducted following the guideline suggested by Green (1994). The focus group approach was chosen as it provided an effective filter for the idiosyncratic views of individuals and enabled a focus on common areas of concern. Second, small group discussion might stimulate students' thinking and identify some relevant, but less apparent issues (Cheetham, 1992; Green, 1994; Rubin & Babbie, 1988).

The aim of the sessions was to obtain student views about the elements of their experiences they considered significant. After a brief introduction to the purpose of the research and the sessions, the students were invited to participate in an open discussion. After the discussion, the students were asked to comment on the presentation and appropriateness of the list of items on student expectations identified from the literature and supported by the panel of experts. In general, they found the list too long and proposed to remove seven items under the college environment (S81-87) due to

similarity to other items on the list. Meanwhile, they proposed deletion of three items under the languages support (S52-55) due to the inapplicability to the IVE context. In the meantime, they proposed four new items (cultural programs, study & reading area, amenity area and campus design). As a result, a total of 54 items in nine domains were developed.

Students' feedback was valuable as it suggested irrelevant items or important items that were missing from the questionnaire. It also helped the researcher to refine the instrument (for example narrowing down the list of college attributes and ensuring the cultural relevance) and avoid complex, hypothetical and leading language (Bell, 1987; Wragg, 1984; Cohen & Manion, 1994; Johnson, 1994; Best & Kahn, 1986; Scott, 1996). Further to several changes stated above (i.e. removing, regrouping and adding items), a revised version of the IVE(Tsing Yi) Student Questionnaire reducing from 87 items to 54 items was developed.

Piloting

The problems relating to the questionnaire design can be identified through the process of pre-testing the instrument on a sample that will be similar to the targeted respondents. In brief, piloting aims to try out the questionnaire,

...to see how it works and whether changes are necessary before the start of the full scale study. The pretest provides a means of catching and solving unforeseen problems in the administration of the questionnaire, such as the phrasing and sequence of questions of its length. It may also indicate the need for additional questions or elimination of others (Kidder, 1981, p.162).

The questionnaire was piloted in order to identify and resolve unforeseen problems or obstacles and to improve the design and logic of the questions in the questionnaires before using them. A pilot test covering 62 students was conducted in early July 2002.

The following modifications were made with an aim to increase not only the validity (such as face validity) and reliability (such as item reliability and total scale reliability) of the instrument but also the response rate in the main survey

Further to the trial-out of the preliminary questionnaire, students were also asked to comment on its presentation and organization. Some students said they felt resistant and diffident about filling in the questionnaire in English as it took more time and effort to understand the content. In response to these problems, mother-tongue was used as the language in the questionnaire

As far as precision is concerned, simple and unambiguous wordings should be used as far as possible (Bell, 1987; Wragg, 1984; Cohen & Manion, 1994; Johnson, 1994; Best & Kahn, 1986). In the pilot test, some complex and ill-defined terms were identified by a respondent who raised a query asking that the meaning of some words be clarified. One student was not clear about what administrative policy was referred to in the question about policy and procedures, and the adjective- 'considerate' also contained several meanings. Thus, the question was re-worded in a more concrete way: 'Registration process and/or procedure for applying transcripts are clear'.

Concerning the formats of answering, as indicated in the returned questionnaires, respondents could grasp the essence of the instructions, and put down the answers without much difficulty. However, some of them were confused by the use of two different (i.e. 5-point and 7-point) scales in a questionnaire. They further proposed that a 5-point scale for all the sections should be adopted to make the answering format simple and consistent. As discussed in the previous sub-section, the use of a 5-point Likert scale was considered appropriate (Green et al., 1998). Some students

also made the suggestion that 'an example' had better be shown as a supplement to the guideline. These points were addressed easily afterwards.

In addition, the order of the questionnaire was easy for the respondents to follow.

According to Moser & Kalton (1971), questions should be arranged in logical sequence. Section 1 of the student questionnaire consisted of several questions regarding background information, which were non-threatening to the respondents, like their departments and travelling time to the college. Besides, the order of section 2 (i.e. perceptions towards the attributes of the college), section 3 (i.e. importance of the college attributes) and section 4 (i.e. perceptions towards overall satisfaction towards the college) was also considered appropriate since the respondents could review the significant college attributes before giving a rating of their degree of satisfaction.

In respect of its length, the questionnaire covered the full range of issues for the problem area, and was thus able to generate sufficient data for answering the research questions. This is consistent with what the view of Best & Kahn (1986) that the questionnaire 'should be as short as possible' (p.175). The importance of clarity and simplicity was also considered. The questionnaire was well-organized including an unambiguous research purpose, the closing date for responses to the questionnaire, instructions on how to answer the questionnaire as well as a thank you note.

The layout of the student questionnaire was put in a neat and systematic way by using sub-lettered questions, consistent font size, and presenting questions under three classificatory sections (Best & Kahn, 1986; Cohen & Manion, 1994). Finally, page numbering should also be included and the message- 'The End' should be included to

indicate its ending.

In response to the problems identified in the pilot process, the above recommendations relative to the design of the questionnaire were made. Not only would these modifications increase the validity and reliability of the instrument, they would also improve the response rate.

Final student questionnaire

Based on the above stages, the final version of the questionnaire (Appendix 3-1) comprised four sections. The first section was designed to collect information on the demographic and educational background of the respondents while the second section, which contained 54 questions, measured students' perceptions of the nine dimensions of college attributes including qualities of teaching staff, relationship with staff and students; student support services; student organization; teaching & learning materials; college environment; administrative support to students; languages support and college facilities. It should be highlighted that there are only two items under the dimension of language support as a result of purifying measures from which a panel of five experts unanimously did not consider the other four items (S52-55, see Table 3.2) valid. Though it is rather unusual to have only two items of this dimension, content validity is essential to ensure the reliability and validity of the instrument (Cohen & Manion, 1994; Verma et al, 1999). Respondents were asked to rate these items, on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In addition, an option '6' (don't know) was also provided. Although there was no theoretical limit to the number of points on a scale, the use of 5-point Likert scale was considered appropriate (Green et al., 1998). To reduce error or avoid patterned responses, 16 out of 54 college attributes were turned into negative statements. For

example, item 2.9 was put as 'Instruction is not student-centred'. It aimed at encouraging respondents to think carefully about their responses rather than answer questions in a particular pattern.

The third section of the questionnaire was designed to examine the importance of 54 college attributes mentioned above. They were asked to choose three items they considered the most significant. The last section consisted of only one question, for examining students' overall level of satisfaction with the IVE (Tsing Yi). Similar to the format of the second section, they were asked to rate the overall satisfaction with the college on a 5-point Likert scale ranging from 1 (strongly dissatisfied) to 5 (strongly satisfied).

Based on the research objective and specific research questions, all the questions were designed to be as simple and unambiguous as possible (Bell, 1987; Wragg, 1984; Cohen & Manion, 1994; Johnson, 1994; Best & Kahn, 1986; Scott, 1996). The framework of the measurement tool is set out below:

Section 1. Demographic and background information (9 variables)

- Department (5 groups)
- Year of admission (3 groups, plus an 'others' option)
- Gender (dichotomous)
- Age (4 groups)
- Travelling time (4 groups)
- Hong Kong Certificate of Education Examination (5 groups)
- Highest education attainment before admission to IVE(Tsing Yi) (7 groups plus an 'others' option)
- Overall grade of Higher Diploma obtained (3 groups)
- Plan to further full-time study after graduation (dichotomy)

Section 2. Perceptions of the attributes of the college

54 measures under nine sub-scales (each scored on a 5-point scale ranging from 'strongly disagree' to 'strongly agree', plus an option '6' representing 'don't know').

The nine domains are:

- Qualities of teaching staff (7 measures);
- Teaching and learning materials (9 measures);
- Administrative support to students (4 measures);
- Relationship with staff and classmates (3 measures);
- Student support services (11 measures);
- Student organization (3 measures);
- Languages support (2 measures);
- College facilities (5 measures) and
- College environment (10 measures)

Section 3. Importance of the college attributes

- Rank the three 'most important' items among the 54 attributes stated in Section 2 (put down the item numbers in sequence, beginning with the 1st important one).

Section 4. Overall satisfaction with the college

- Indicate the overall degree of satisfaction with the college on a 5-point scale (ranging from 'strongly dissatisfied' to 'strongly satisfied')

To sum up, questions of Section 2 and 3 are developed based on the specific research questions of 'what are student expectations on vocational education?' and 'to what extent are their expectations met?' while those of Section 4 aim to find out the answers of specific research questions on 'what are the significant factors affecting the student satisfaction level?' and 'what are the overall degree of student satisfaction?'.

Design of questionnaire on assessing employer satisfaction with IVE(Tsing Yi) graduates

The design of the employer questionnaire was based on the following similar stages: i) generating a list of items based on the review of relevant literature; ii) purifying measures by assessment by a panel of experts and focus group discussion with employers; and iii) conducting a pilot test involving ten target respondents. As a result

of this process, refinements were made. For example, some items on language proficiency required further classification and regrouping. To make it clear and neat, its length was limited to three pages. The instrument was finalized after such reviews and modifications. Details of the above processes are discussed below.

A preliminary data-collecting instrument on assessing employer perceptions of the IVE(Tsing Yi) graduates in English was developed according to the research questions and literature review (HKU, 1997; Roizen and Jepson, 1985; SCANS, 1991; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001). Similar to the framework of the student questionnaire, this instrument contained four sections. Section 1 consisted of five questions on company background while Section 2 was designed to measure employers' perceptions of 43 attributes of the IVE(Tsing Yi) graduates in their employment, from which most of the items were proposed by the VTC Key Skills Working Group (VTC, 2001). As introduced in Chapter 2, the work group was set up in 2001, and its prime objective was to solicit and disseminate contributions from employers and students about the key skills that the VTC / IVE students need when they enter the workplace in Hong Kong. Section 3 was concerned with respondents' views about the importance of various employability skills / personal qualities of the graduates and finally Section 4 with only one question was set to examine their overall level of satisfaction with the IVE(Tsing Yi) graduates.

Generating a pool of items on employer expectations

As examined in the literature review chapter, the technical knowledge and skills, and the personal qualities of graduates are the main concerns of employers, which is the core theme of the employer survey. Below is a detailed discussion of the development

of the items on employer expectations (Section 2 of the questionnaire). As shown in the below table, the 43 items grouped under the four domains (suggested by the Conference Board of Canada (1999) and VTC (2001)) were derived from various literature (HKU, 1997; Roizen and Jepson, 1985; SCANS, 1991; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001).

tem no.	item (The IVE(TY) graduate(s) is/are:	Source
	<u><i>Technical Knowledge and Skills</i></u>	
E1	technically knowledgeable	Conference Board of Canada (1999); VTC (2001)
E2	possessing competent practical skills	
E3	able to cope with the technical and practical demands placed on him/her/them	
E4	able to acquire new technical and practical skills	
E5	able to solve technical problems within acceptable time limits	
E6	conscious of occupational health and safety	
E7	showing initiative and creativity in solving technical problems	
E8	aware of the technical developments related to his/her/their profession	
E9	aware of ethics and professionalism	
	<u><i>Personal Management Skills</i></u>	
E10	confident in him/herself or themselves	SCANS, 1991; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001
E11	holding positive attitude toward learning	
E12	accountable toward change	
E13	holding positive attitude to change	
E14	able to recognize and respect of diversity	
E15	having honesty, integrity and personal ethics	
E16	initiative, energetic and persistent	
E17	able to set goals and priorities	
E18	able to plan and manage time	
E19	able to identify and suggest new ideas	
E20	able to work flexibly	
E21	able to manage him/herself or themselves	
E22	punctual	
E23	hardworking	
E24	conscientious	
	<u><i>Academic Skills</i></u>	
E25	able to communicate clearly in English	HKU, 1997; Roizen and Jepson, 1985; SCANS, 1991; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001
E26	able to communicate clearly in Chinese	
E27	able to listen to, understand and learn	
E28	able to read, comprehend and use written materials	
E29	willing to continue to learn for life	
E30	able to think critically	
E31	able to think creatively	
E32	able to understand and solve problems	
E33	able to access and apply specialized knowledge	
E34	able to use technology	
E35	able to manage information	
E36	able to use numbers	
	<u><i>Teamwork skills</i></u>	

E37	able to respect the thoughts and opinions of others	Roizen and Jepson, 1985; SCANS, 1991; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001
E38	able to understand and contribute to the organization's goals	
E39	able to understand and work within the culture of the group	
E40	able to exercise "give and take"	
E41	able to seek a team approach	
E42	able to lead when appropriate	
E43	able to plan and make decisions with others	

Table 3.3 A list of items on employer expectations derived from the literature review

Purifying measures by a panel of experts and focus group discussion

The 43 items shown in Table 3.3 were submitted to a panel of five experts for assessment of the content, language, and relatedness with the corresponding concepts.

The panel consisted of two faculty members and three professional staff working at post-secondary institutions. As mentioned in the previous chapter, there is a lack of local research into employer satisfaction. For a fuller understanding of the subject matter, the five experts were individually asked to evaluate each item for relevance on a scale of 1 (poor) to 5 (good). Similar to that of the student questionnaire, items that four of the five experts judged as 4 or above were considered content valid items within the domain of interest. All items met this criterion.

In order to obtain feedback on the 43 items, ensure the comprehensiveness of these items, especially those unique to the IVE (Tsing Yi) and relevant to the local context, a focus group discussion with five employers was carried out. A purposive sampling method was used to maximize diversity to obtain a wide range of information. The five target employers were chosen to include both large and small organizations that had hired IVE(Tsing Yi) graduates of at least three departments in the past three years.

Small group discussion was used because it gave the subjects freedom to express their own views, with an emphasis in uncovering the meaning and interpretations that lie

behind the items identified from the literature. It might also stimulate their thinking and identify some relevant, but less apparent issues (Cheetham, 1992; Green, 1994; Rubin & Babbie, 1988). The discussion was held at the conference room of the IVE(Tsing Yi) campus and lasted for one and a half hours. The aim of the session was to obtain employer views about the essential elements affecting their satisfaction with the college. After a brief introduction of the purpose of the research and the session, the employers were invited to participate in an open discussion on the subject matter. After the discussion, they were asked to comment on the presentation and appropriateness of the 43 items on employer expectations based on the literature and reviewed by the panel of experts. In general, they found the list comprehensive and representative. In spite of this, they suggested the addition of three new items to the list, namely 'aware of their own strengths and weaknesses', 'dedicated' and 'pleasant to work with'. In addition, they also proposed a more specific classification of verbal and written language and proposed five items ('able to communicate clearly in written English', 'able to communicate clearly in written Chinese', 'able to communicate effectively in oral English', 'able to communicate effectively in oral Cantonese' and 'able to communicate effectively in oral Putonghua') to replace E25 and E26. As a result, a total of 49 items in four domains were developed. In addition, 14 of them were intentionally set as negative in order to reduce respondent error, such as patterned responses. For example, item 2.1.5 was put as 'unable to solve technical problems within acceptable time limits' instead of 'able to solve technical problems within acceptable time limits.' In addition, in respect of the rating scales used in the second, third and fourth sections, 5-point rather than 7-point scales were adopted as easier for the respondents to grasp and answer.

Piloting

The pilot test involving ten employers was conducted in late June 2002 and aimed to identify and resolve unforeseen problems or obstacles such as to improve the design and logic of the questions in the questionnaires before using them. To ensure a diversity of perspectives in the pilot, the ten employers were chosen to include a range of businesses and different scales of organizations. All of them were owners of the organizations or in managerial positions bearing the title of human resources manager who had hired IVE(Tsing Yi) graduates of more than three departments in the past three years. Due to the small size of sample, the pilot failed to indicate and reflect any improvement in the item reliability and total scale of reliability of the instrument. However, feedback on the questionnaire was immediately requested and some minor problems such as the misunderstanding of some wordings and the sequence of the questions were modified afterwards. These changes would definitely increase both the validity and reliability of the questionnaire.

After piloting, the following improvements were made. First, bi-lingual (in both Chinese and English) presentation was suggested in the questionnaire. Second, the wording should be specific in order to avoid multiple interpretations (Bell, 1987; Wragg, 1984; Cohen & Manion, 1994; Johnson, 1994; Best & Kahn, 1986; Scott, 1996; Miller, 1983). For example, section 3 and 4 contain only one straight-forward question respectively to explore their views on importance of the employability skills / personal qualities as well as their overall degree of satisfaction with the graduates. The wording was changed to be as direct as possible.

Moreover, the content was re-ordered from the general to more specific responses. In this case, the overall degree of satisfaction with the IVE(Tsing Yi) graduates was

placed at the last part of the questionnaire (Johnson, 1994; Cohen & Manion, 1994; Miller, 1983). An example demonstrating how to answer the questions was added to achieve a higher level of reliability through giving standardized instruction.

Finally, page-numbers were added (Johnson, 1994; Cohen & Manion, 1994) and a clear endnote, 'The End and Thank you for your participation' was put to indicate the ending of the questionnaire (Green et al., 1998).

The above changes were made and a clear covering letter was written, including the reasons for choosing participants in the survey, and the possible impact of the study on improving the course design and service quality (Kidder, 1981; Green *et al.*, 1998). It was hoped that the results of piloting the questionnaire had enhanced the validity and reliability of the instrument and had increased employers' motivation to participate.

Final employer questionnaire

There were altogether four sections in the final questionnaire (Appendix 3-2). Section 1 consisted of five questions (three open-ended and two closed-ended) on company background while Section 2 was designed to measure employers' perceptions of 49 attributes of the IVE(Tsing Yi) graduates in their employment. Among these attributes, nine questions were focused on technical knowledge while the rest of them were about employability skills / personal qualities. Respondents were asked to rate these items, on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In addition, an option '6' (don't know) was also provided.

Section 3 was concerned with respondents' views about the importance of various

employability skills / personal qualities of the graduates. They were asked to choose three employability skills they considered the most significant ones.

Finally, Section 4 with only one question was set precisely to examine their overall level of satisfaction with the IVE (Tsing Yi) graduates. Consistent with the format used in the second section, they were asked to rate the college on a 5-point Likert scale ranging from 1 (strongly dissatisfied) to 5 (strongly satisfied). A five-point scale was again used for answering this question. They were asked to indicate their choices according to the given scales. A five-point scale was chosen because it was easier for respondents to grasp and manage. It was based on the judgement that using a simple scale like two and three-point was too abstract while a complicated scale like seven-point one would be too hard for them to decide on a suitable response.

The questionnaire was designed to address the specific research questions and the research objective, for example '*What are employers' expectations?*', '*What are the significant employer expectations?*' and '*To what degree are their expectations met?*'.

The framework of the measurement tool is set out below:

Section 1. Company background (5 variables)

- Nature of the business (open-ended)
- Number of staff in the organization (open-ended)
- Number of IVE(Tsing Yi) graduates the organization have recruited in the past three years (open-ended)
- The main job nature of these new recruits (6 groups and an 'other' option)
- The main discipline of these new recruits (5 groups)

Section 2. Perceptions of the technical knowledge & skills and employability skills / personal attributes of graduates

- Technical knowledge and skills (9 measures, each scored on a 5-point scale ranging from 'strongly disagree' to 'strongly agree', plus an option '6' representing 'not applicable')

- Employability skills / Personal attributes (40 measures, each scored on a 5-point scale ranging from ‘strongly disagree’ to ‘strongly agree’, plus an option ‘6’ representing ‘not applicable’)

Section 3. Importance of employability skills / personal attributes

- Rank the three ‘most important’ items among the 40 employability skills / personal attributes stated in Section 2.2 (put down the item numbers in sequence, beginning with the 1st important one).

Section 4. Overall satisfaction with the IVE(Tsing Yi) graduates

Indicate the overall degree of satisfaction with the graduates on a 5-point scale (ranging from ‘strongly dissatisfied’ to ‘strongly satisfied’)

In brief, questions of Section 2 and 3 are developed based on the specific research questions of ‘what are employer expectations on vocational education?’ and ‘to what extent are their expectations met?’ while those of Section 2 and 4 aim to find out the answers of specific research questions on ‘what are the significant factors affecting the employer satisfaction level?’ and ‘what are the overall degree of employer satisfaction?’

Estimating and establishing the Reliability and Validity of the instruments (i.e. Student & Employer Questionnaire)

Reliability

Reliability is normally tested by means which determine whether the data collection instrument operates in a consistent fashion (Shaughnessy & Zechmeister, 1997; York, 2000). The instruments of the two studies were developed from a strict procedure: referring to the relevant literature, conducting focus group with the potential targets, consulting expertise of the field and piloting. Further to this, the study followed a strictly standardized data collection, analysis and interpretation process and the process was clearly described in this chapter to ensure that other independent researchers can replicate the studies in the same or similar settings. After that, the

student and employer questionnaires are expected to produce consistent results.

In general, there are three ways to reflect the reliability of a study namely test-retest reliability, internal consistency and parallel-form reliability. Since this study adopts a cross-sectional design and the subjects are given the questionnaire once only, the test-retest method is not applicable to this situation. As stated above, there is only one version of the questionnaire for students and another one for the employers, the parallel-form one (i.e. measure of the consistency across different versions of the questionnaires) is also not feasible.

In this context, the internal consistency of the responses to a common scale will be used to estimate the reliability of the questionnaires for the student and employer survey. First, validity checks for internal consistency of items forming each of the scales were performed by computing alpha coefficients on the samples of the two surveys. The alpha (Cronbach's Alpha) coefficients of various measures of the student questionnaire are between 0.67 and 0.85, which imply a high internal consistency among items in each of the scales suggesting that items within the scale are generally homogeneous, which try to measure one underlying construct (Lewis, 1985). As shown in Appendix 4-3, among the nine dimensions of the student survey the reliability alphas of four dimensions, namely 'quality of teaching staff' (0.82), 'teaching & learning materials' (0.85), 'student organization' (0.82) and 'college facilities' (0.84), are very high while the rest of them, including 'student support services' (0.72), 'relationship with staff and classmates' (0.70), 'language support' (0.67) and 'physical education service' (0.69), are moderately high. The internal consistency reliability among items in each of the scales (α) for the employer questionnaire ranges from 0.56 to 0.90. Appendix 4-4 shows that among the four

dimensions, the reliability alphas of the 'personal management skills' (0.88) and 'teamwork skills' (0.90), are very high while those of the 'academic skills' (0.57) and 'technical knowledge & skills' (0.56), are only marginally acceptable. Further to the above, high total scale reliability of the student and employer questionnaires (0.82 and 0.84 respectively) also indicates that the different parts of the two sets of the questionnaires are measuring the same thing.

Other than the Alpha (Cronbach) based on the average inter-item correlation, the split-half technique, Spearman-Brown Prophecy Formula, using an odd-even split, was also used to estimate the internal consistency of the two sets of questionnaires. This technique was used for each domain to determine item consistency. A high correlation among items suggests that the items measure the same trait, and are internally consistent. The results show that the alpha coefficient estimates per scale for each domain range from 0.68 to 0.88 (employer survey) and from 0.61 to 0.79 (student survey) respectively. The same formula was used to estimate the reliability of the entire questionnaires and to determine the split-half reliability. The estimated reliability of the two sets of questionnaires is over 0.6, indicating that no theoretical differences exist among the scales, and that the elements of the instruments are reliable and consistent. Detailed results of item analysis, exploratory factor analysis and confirmatory factory analysis with reliability test of the two instruments will be discussed in the findings chapter.

Validity

The simplest form of validity is known as face validity. It is clearly reflected by a question: 'does the instrument seem to be measuring what it was intended to measure?' (York, 2000). This can simply be tested by asking informed persons to give

their opinions about the instrument. In this study, a panel of experts, such as Ms Linda Gross (Teaching & Learning Advisor) and Dr. Chris Cheng (Quality Assurance Officer), were invited to evaluate the relevance of the items of the data-collection instruments.

However, the face validity is only regarded as the baseline. A better method is known as content validity. This deals with the extent to which the items of the instruments are representative of the entire domain of the matters being investigated. In this study, conducting an extensive review of relevant literature, adapting established, reliable and valid instruments, reviewing and conducting focus group discussion with the target groups ensured a high level of content validity. For example, the pilot test provided an opportunity to examine the instrument's theoretical structure, as well as to weed out unreliable items. Details of item analysis (coefficient alpha and item-total correlations of various measures of the two sets of questionnaires) and factor analysis will be presented in the findings chapters. Besides, it was able to double check any ambiguities and ascertain that the participants would have a full understanding of the terms and instructions of the instruments.

In addition, Cohen and Manion (1994) reveal that the validity of postal questionnaires is affected by the extent of which the respondents complete the questionnaires accurately and whether the non-respondents would have the similar distribution of answers as those who returned the questionnaires. In the student and employer surveys, the questions and answers were designed to be simple and revised after the pilot studies with an aim to minimizing the chance of misinterpretations while a series of follow-up measures to maximize the response rate were taken. For example, to encourage them to complete and return the questionnaires, the significance of the

study was highlighted in the covering letters and reminders were arranged.

To conclude, both the systematic process of developing the two sets of questionnaires (i.e. conducting an extensive review of the relevant literature; developing preliminary data-collection instruments based on reliable and valid ones; refining the tools by being reviewed by a panel of experts and conducting focus groups with target respondents; and carrying out the pilot study) and standardized procedure to collect the data contribute to the high validity and reliability of the instruments.

3.4 Data-collection process

Student survey

In late October 2002, questionnaires were sent out to 800 graduating students by mail and they were advised to return the completed forms to the college while collecting their gowns in mid November. An e-mail was then sent to the selected respondents seven days before the deadline to ask for their assistance and remind them to bring along the completed questionnaire when returning to the college to collect their certificates.

Employer survey

In early November 2002, questionnaires were mailed out as an attachment to the promotion letters to 200 employers, and they were advised to return the completed questionnaires to the college by the end of November. A follow-up call was made to all the selected respondents in mid-November to check the receipt of the questionnaires, and ask for their assistance to handle queries in relation to the survey, and most importantly to remind them to return the completed questionnaire before the deadline.

3.5 Data-processing and analysis

Student survey

The researcher input the data according to the responses indicated by the students. Such data was then processed by a statistical package- SPSS, for analysis. A manual validation, such as identifying and following up any coding and/or input errors was adopted to ensure data validity. Statistical techniques employed in this study include frequency distribution, standard deviation, mean values, cross-tabulation, T-test and ANOVA (analysis of variance). For example, to provide an overview of the respondents' demographic profiles, overall degree of satisfaction and their choice of the most important attributes responses, the frequency distributions, mean values and standard deviations (SD) were reported. Further to this, T-test and ANOVA procedures were used to assess if there are significant differences in students' overall degree of satisfaction between gender and among the various academic departments respectively. Factor analysis with VARIMAX rotation was conducted to create correlated variable composites from the original 54 attributes, and to identify a smaller set of dimensions, or factors that explained most of the variances among the attributes. In this study, factors were retained only if they had eigenvalues greater than or equal to 1.0 and factor loadings greater than 0.5. To assess the reliability of measures, coefficient estimates of Cronbachs' Alpha and Split-half technique using Spearman-Brown Prophecy Formula were calculated to test the reliability of variables retained in each factor, and coefficients greater than or equal to 0.5 were considered acceptable and a good indication of construct reliability (Nunnally, 1967). The results of factor-analysis were further analyzed using multiple regression analysis. The regression analysis was applied to examine the relationship between several independent variables, thereafter as 'IVs' and a dependent variable, thereafter as 'DV'.

More elaboration of such analysis will be shown in the subsequent part of the employer questionnaire.

In respect of students' perceptions of the college attributes, the mean scores and standard deviation for each of the statements were calculated from the raw data.

Option 6 (don't know) was treated as 'missing value' and thus did not affect the mean scores. In general, the higher the mean scores, the more favorable was the rating of the attributes by the students. Further, the average of the mean scores for the eight factors (derived from the factor analysis) were also be calculated giving a measure of student satisfaction with each factor.

Concerning students' expectations on the college attributes, the raw data is shown in Appendix 4-5, which represents the number of respondents who considered that particular item as the first, second and third important ones (among the college attributes). In addition, the summation of the frequencies for each attribute is stated in the fifth column of the same table. For example, a total of 145 respondents found the attribute 'the course is vocationally specific' important.

To reflect truly the above raw statistics, weighted scores (i.e. '3', '2' and '1') were assigned to the number of respondents who consider those items the first, second and third important attributes respectively. As shown in the last column of Appendix 4-5, a new variable (called summation of the weighted scores of the three most important attributes) was created by adding up the weighted scores of each attribute. Taking item 16 (The course is vocationally specific) as an example, the score 326 was obtained from the following computation: $326 = (16 \times 3) + (59 \times 2) + (25 \times 1)$.

In addition, a management tool called Importance-Performance Analysis (IPA) is introduced here to analyze the data on students' perception of the level of importance of and satisfaction with the college categories. IPA conceptually underlies the multi-attribute models that date back to the late 1970s, and has become a popular managerial tool that has been widely used to identify the strength and weakness of a brand, a product, a service and a retail establishment in various industries in recent years (Chapman, 1993). Some of its applications include the automobile industry, retirement communities, health care products, hospital services, tourism policy, restaurant service, hotel service, and student services (Martilla & James, 1977; Chapman, 1993; Lewis, 1985; Green et al., 1998).

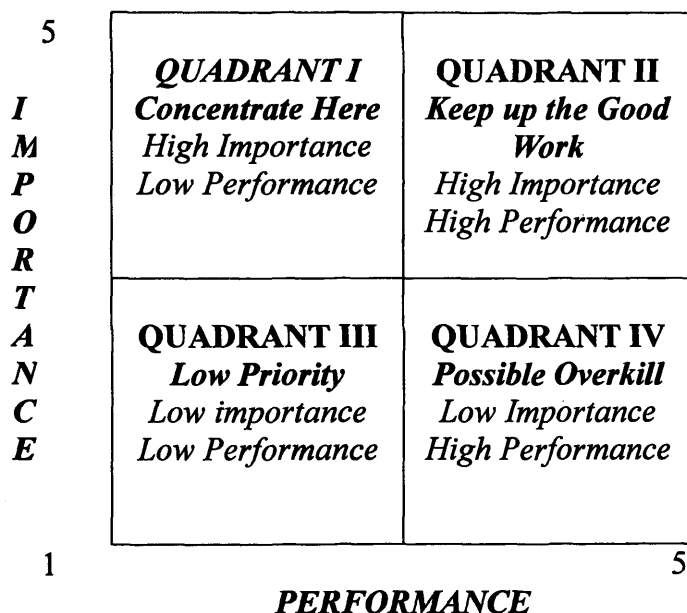


Figure 3.1 Importance-Performance Analysis grid.

(Adapted from Chapman, 1993; Martilla & James, 1977)

Referring to Figure 3.1, the interpretation of the technique is graphically presented on a grid divided into four quadrants. The Y-axis represents the respondents' perceived importance of the attributes / categories, while the X-axis shows the service's (product's) performance in relation to these attributes / categories. Four quadrants can then be identified easily. For example, attributes / categories falling into the Quadrant

I (Concentrate Here) are perceived to be very important, but the respondents are not so satisfied. Remedial actions are therefore recommended to concentrate here. In the Quadrant II (Keep Up the Good Work), those attributes / categories are perceived (by the respondents) to be very important and of very good performance (Chapman, 1993; Green, 1998; Lewis, 1985; Martilla & James, 1977).

The above framework is useful in answering a crucial specific research question (i.e. To what extent are the significant expectations of students and employers met?). The interpretation of the technique is graphically presented (figure 3.1) on a grid divided into four quadrants. The *Y*-axis represents the students / employers' perceived importance of the attributes, while the *X*-axis shows the IVE's performance in relation to these attributes. As a 5-point Likert scale for students and employers is used in this study to assess service performance, a score of 3 or above will be taken as an indication of satisfaction. Based on the above framework, the present study will relate perceptions and expectations while dissatisfaction can be viewed as a disconfirmation between the two. In other words, the IPA grid will be used to identify possible disconfirmation for this study.

In U.K., Green et al. (1994) adopted a similar framework to improve the education service quality and surveyed over 1,700 students at the University of Central England in Birmingham by asking them to rate the importance and performance of 44 institution items. This technique was applied to make a list of intervention priorities like 'prompt feedback of assignment' and 'notification of changes to courses'. In an increasingly competitive environment, it is essential for the management level to review its own positioning periodically. The IPA technique is seen as a valid and powerful tool for such purpose. For example, it can identify service quality areas that

require remedial strategic actions (Sethna, 1982). Similar to this research, many studies have also attempted to analyze user satisfaction in terms of both expectations that relate to certain important attributes and judgments of the attribute performance (Chapman, 1993; Green et al., 1998; Martilla & James, 1977). The results support the value of its existence. Due to the constraints of limited resources, managers have to focus on those categories that customers consider important while measuring customers' feedback solely on service performance is absolutely inadequate. MacKenzie (1986) supports this by stating that 'when a customer perceives an attribute as important, the customer will believe that the attribute will play a significant role in influencing his or her product choice' (p.180).

Employer survey

Similar data-processing and analysis to that used in the student survey were applied to the employer survey due to the similarity in the design of the instrument. Taking employers' expectations on the graduate qualities as an example, the raw data is shown in Appendix 4-7, which represented the number of employers who considered that particular attribute as the first, second and third important ones (among the personal attributes / employability skills). In addition, the summation of the frequencies for each attribute was stated in the fourth column of the table. For example, a total of 33 employers found the attribute '*hardworking*' (item number 37) important. To reflect the data more accurately, weighted scores (i.e. '3', '2' and '1') were assigned to first, second and third choices, a new variable (called summation of the weighted scores of three most important attributes) was created by adding up the weighted scores of each attribute as stated in the last column of the below table. Taking '*confident in him/herself or themselves*' (item number 1) as an example, 62 was obtained from the following computation: $62 = (20 \times 3) + (1 \times 2) + (0 \times 1)$.

In addition, as with the student questionnaire, regression analysis was applied to examine the relationship between several 'IVs' and a 'DV' (employers' overall degree of satisfaction with IVE(Tsing Yi) graduates). As shown in Appendix 4-13, the regression analysis shows the significance of the results with their associated beta coefficients.

3.6 Response rates

Among the questionnaires from 800 graduates taking part in the survey, 350 valid questionnaires were received while out of the 200 employers, 72 valid questionnaires were returned. Thus, the response rates to the student and employer surveys are 43.8% (N=350) and 36% (N=72) respectively. According to Drew et al. (1996) and Rubin & Babbie (1988), the numbers of cases for the two surveys had met the baseline of the small-scale social research.

The 60% non-responses of the two surveys were probably due to the lengthy questionnaires which had violated the principle of the 'simplicity' suggested by Best & Kahn (1986). In addition, although the possible impacts of the study on improving the degree of student and employer satisfaction were indicated clearly in the covering letters, the changes were not immediate and might not benefit them.

3.7 Ethical issues

Negotiation of access and seeking approval from the host institution

It is essential to obtain permission to carry out research and acceptance by those taking part. Literature clearly shows that no rights of access can be assumed (Anderson, 1990; Bell, 1993; Burgess, 1989; York, 2000). In view of its importance, a

clear official channel to request permission to carry out the investigation was identified. In June 2002, a memo with a project outline was submitted to the principal via the section head for this purpose. Not long afterwards, approval was obtained to conduct this institutionally based study.

Informed consent and confidentiality

All the subjects (i.e. employers and students) chose voluntarily to take part in the study. To respect the anonymity and privacy of the subjects, a variety of precautionary measures like anonymous questionnaires and only aggregate data be presented in the report were taken. Respondents were also clearly informed of the research purpose and what would be done with the information obtained.

3.8 Summary

The intent of this study is to examine a) how far the service provision at IVE(Tsing Yi) matches customer expectations and b) the extent to which the IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations. This chapter describes the methodology used in the conduct of this study.

CHAPTER 4

FINDINGS

Findings from the two surveys (student and employer) are presented based on the two research questions and specific research questions listed below:

- 1) How far does service provision at IVE(Tsing Yi) match customer expectations?
 - What are the expectations of students and employers on vocational education?
 - To what extent have the significant expectations of the students and employers been embedded in the quality framework of the IVE?
- 2) To what extent do IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations?
 - What are the significant factors affecting the satisfaction levels of the IVE students and employers respectively?
 - To what extent are their expectations met?
 - What are the overall degrees of student and employer satisfaction?

In brief, besides the demographic background of the respondents (4.1) and identification of factors for the two surveys (4.2), results from the two sets of data yielded information that enables the researcher to answer the research questions in relation to customers' expectations (4.3), the level of expectation met (4.4) and their overall degree of satisfaction (4.5). The data reveals a clear mismatch between customer expectations and the quality framework of the IVE(Tsing Yi), and between the expectations of students and employers. Other than identifying the quality gaps, the findings facilitated the examination of the effectiveness of the quality assurance mechanism of the IVE(Tsing Yi). Based on such an analysis, critical examination of the

conceptions of quality expressed in terms of its purpose, the process of the continuous improvement mechanism and its applications in the vocational higher education context became possible.

4.1 Characteristics of the respondents

The student and employer surveys focused on their expectations about and degree of satisfaction with the IVE(Tsing Yi). Of the questionnaires sending to 800 graduates and 200 employers, 350 and 72 valid questionnaires were received respectively, representing a response rate of 43.8% and 36% respectively. According to Drew et al. (1996) and Rubin & Babbie (1988), the number of cases had met the baseline of the small-scale social research. To show the representativeness of the respondents taking part in the student and employer survey, the demographic data are presented as below.

Characteristics of the respondents of the student survey

Of the 350 respondents, 62% were male (N=217) and 38% were female (N=133).

The majority of them (82.2%, N=288) were aged between 20 and 23 (Table 4.1).

Gender Age			
	Male	Female	Total
Under 20	4 (1.1%)	3 (0.9%)	7 (2.0%)
20-21	55 (15.7%)	26 (7.4%)	81 (23.1%)
22-23	123 (35.1%)	84 (24%)	207 (59.1%)
Over 24	35 (10.0%)	20 (5.7%)	55 (15.7%)
Total	217 (62%)	133 (38%)	350 (100.0%)

Table 4.1 Gender and Age of the respondents

The respondents shared similar characteristics with the general IVE graduates. Firstly, the proportion of male to female respondents was 1:0.61. That means that the number of male students exceeded those of the female. The reason for the greater number of

male students at IVE(TY) campus was its emphasis on technical training and engineering subjects such as civil engineering and electrical engineering, which usually attracts more male than female students.

Secondly, as far as their Hong Kong Certificate of Education Examination results were concerned, nearly 70% of students (N=242) obtained 12 points¹ or above. Nearly 90% of students attained the education levels of F.5 (N=102), F.6 (N=9) and F.7 (N=204) while around 10% of them (N=29) obtained diplomas before admission to the IVE(Tsing Yi). This was almost the same as the overall figures of the Tsing Yi campus.

Around a quarter of the students in the survey were majoring in Information & Communications Technology (N=97) whereas slightly more than one-fifth of them were majoring in Business Administration (N=71) and Engineering (N=82). It was interesting to note that male and female students were not spread evenly amongst the different departments (Table 4.2). As discussed previously, there were more male than female in the Tsing Yi campus (at a ratio of 1:0.65). This ratio was however not applicable to the Business Administration students since the male to female ratio of the Business Administration department was 1:1.5 (Campus Secretariat). The possible factor leading to this pattern was that the female students tended not to choose technical subjects like the civil engineering and eventually had less choice. Even though the IVE(Tsing Yi) was mainly an engineering campus, there were two possible reasons why female students chose the IVE(Tsing Yi) rather than other local post-secondary institutions or other IVE campuses. The first reason might be that the Tsing Yi campus offered programs only at the higher diploma level and this made the institution different from those providing courses also at the certificate level. The second possible

¹ The accumulative total of their 6 best subjects: A=5; B=4; C=3; D=2; E =1 and F or below=0

explanation was that the campus was the sole provider in Hong Kong of two programs 'Transport and Logistics' and 'Event Management'. The popularity of these programs was reflected by a large number of potential customers (i.e. applicants), and primary customers (i.e. employers). Taking the latter as an example, the employment rate of both courses was above 90%, which was higher than the average rate of 84% for the higher diploma programs (VTC, 2000; 2001).

Gender Department	Gender		
	Male	Female	Total
BA	18 (5.1%)	53 (15.1%)	71 (20.3%)
CN	40 (11.4%)	7 (2.0%)	47 (13.4%)
ENG	60 (17.1%)	22 (6.3%)	82 (23.4%)
ICT	63 (18.0%)	34 (9.7%)	97 (27.7%)
IEM	36 (10.3%)	17 (4.9%)	53 (15.1%)
Total	217 (62.0%)	133 (38.0%)	350 (100.0%)

Table 4.2 Departments and Gender of the respondents

*** BA: Business Administration; CN: Construction; ENG: Engineering; ICT: Information & Communications Technology; and IEM: Industrial Engineering Management**

Table 4.3 shows that around one-fifth of the respondents (N=67) took 30-45 minutes from their home to the college while more than 65% of them (N=236) needed more than 46 minutes' traveling time to the college. This implied that the college location was not so convenient to many students who needed to spend more than one and a half hours on travelling from and to the college.

	Frequency	Percent
Less than 30	47	13.4
30-45	67	19.1
46-60	122	34.9
Over 60	114	32.6
Total	350	100.0

Table 4.3 Travelling time to the college

In respect of the overall grade of graduation, nearly 40% of students (N=137) were awarded a Higher Diploma with Credit while more than half of them (N=191) obtained an overall grade of Pass (Table 4.4). The distribution was quite similar to those of the overall figures of the campus. Based on these findings, two roughly equal groups could be identified. Of them, slightly fewer than half of the students got a credit or distinction while just over half of them were awarded an overall grade of pass. It was interesting to note that there was a slight correlation between the higher diploma grades the students obtained and their plan for further full-time studies ($r=0.192^{***}$) (Table 4.4). Such correlation was probably because students with good academic results were more confident in applying for degree courses while those with less satisfactory results had weaker motivation to submit applications for the degree programs owing to a lower chance of being selected.

	Frequency	Percent
Distinction	22	6.3
Credit	137	39.1
Pass	191	54.6
Total	350	100.0
Correlation of their plan for further study and overall grade of HD obtained: $r=0.192^{***}$		

Table 4.4 Overall grade of HD obtained

** Correlation is significant at the 0.01 level (2-tailed).

In addition, as shown in Table 4.5, 70% of students had no plan for further full-time study after graduation. It was interesting to note that there was a slight statistically significant relationship between the age of students and their plan for further study ($r=0.203^{***}$). The older the students, the less likely they had a plan for further study after graduating from the higher diploma courses. It might be due to a pressure from themselves or their family to earn their own living. On the other hand, the younger students might be more ambitious and see the potential of qualifications. There is no statistical correlation between the gender of students and their plans for further study

(See Appendix 4-1).

	Frequency	Percent
Yes	105	30.0
No	245	70.0
Total	350	100.0

Table 4.5 Plan for further study

The demographic data of the respondents are summarized here. The composition of respondents and that of the general IVE(Tsing Yi) population was broadly similar in terms of the gender distribution and their public examination results. Results also indicated that the IVE(Tsing Yi) students needed to travel a long distance from and to the college. Despite a longer journey, the students still preferred IVE(Tsing Yi) to other local institutions probably due to the uniqueness of the college, offering only the higher diploma courses and being the sole provider in Hong Kong of two popular courses namely 'Event Management' and 'Transport and Logistics'. Lastly, 70% of students had no plan for further full-time study largely due to their inclination to enter the workplace after graduation.

Characteristics of employers taking part in the survey and the graduates employed

A total of 72 employers, who hired 218 IVE(Tsing Yi) graduates in the past three years, took part in the survey.

Number of graduates recruited by employers with different types of business.

Table 4.6 shows the distribution of the employment sectors of the 72 employers taking part in this survey. Of them, slightly more than half were in the field of commerce and industry (54.2%, N=39). This was largely due to the emphasis on the business, manufacturing and engineering disciplines at the IVE(TY) campus. The 'community, social and personal services' was the second most popular sector (26.4%, N=19).

16.4% of the employers were from the civil service and only 2.8% were in the education sector.

Business nature of the organization	Frequency	Percent
Commerce & Industry	39	54.2%
Community, Social and Personal Services	19	26.4%
Civil Services	12	16.7%
Education	2	2.8%
Total	72	100%

Table 4.6 Employment sectors of 72 employers taking part in the survey

The main disciplines from which they were recruited

The questionnaire asked employers to state the number of students that had been recruited from the five disciplines offered by the Tsing Yi campus. Table 4.7 shows the main disciplines of the new recruits. Over half the graduates came from two disciplines, one-third of them majoring in 'Engineering' (33.3%) and one quarter in 'Business Administration' (25%).

Department	Frequency	Percent
Engineering	24	33.3%
Business Administration	18	25%
Information and Communications Technology	12	16.7%
Industrial Engineering Management	10	13.9%
Construction	8	11.1%
Total	72	100%

Table 4.7 Main disciplines of the new recruits employed by the respondents

A comparison of the figures from the sample showing the percentage of students from the five disciplines with the percentage of students graduating from Tsing Yi campus in 2001/2002 shows some interesting similarities and differences (See Appendix 4-2).

The rank order in the two cases was different. There were proportionately fewer students from the information and communications technology discipline in the

employers' sample than in the group graduating from that department at Tsing Yi campus. There were also proportionately more students from the engineering discipline in the employers' sample than in the group graduating from that department at Tsing Yi campus. In other respects the two tables were very similar.

To sum up, a total of 72 employers, who hired 218 IVE(Tsing Yi) graduates in the past three years, were enumerated in the survey. As the main purpose of this research is to evaluate the service quality of IVE(Tsing Yi) from the perspective of customers, some basic data on employers taking part in the survey and the graduates recruited by them are highlighted as follows. More than 80% of the respondents came from the fields of Commerce & Industry (54.2%) and Community, Social and Personal Services (26.4%). Similarly, nearly 80% of the 218 new recruits recruited by their organizations worked in these two sectors (50.4% and 29.4% respectively).

4.2 Identification of factors for the two surveys

In order to explore the data on student and employer satisfaction with their perceptions of a variety of attributes further, an exploratory factor-analysis was used to identify the underlying dimensions (called 'factors') that explained the variance in the attributes. The principal component factor method with a VARIMAX rotation was used to generate the factors underlying the 54 and 49 attributes of the student and employer surveys respectively. The eigenvalues suggested that an eight-factor solution and a four-factor solution explained 65.2 percent and 71.81 percent of the overall variance of the student and employer data respectively. Most variables loaded heavily on one factor and not heavily on others, hereby indicating minimal overlap among these dimensions and that all dimensions were independently structured. The higher loadings signaled the correlation of the variables with the factors on which they loaded. The communality

of each variable was relatively high, above 0.53 for both data sets. This indicates that the variance of the original values was fairly captured by the eight and four factors respectively. Cronbach's Alpha was calculated to test the reliability of each factor. The results showed that the alpha coefficients for all eight and four dimensions ranged from 0.67 to 0.85 (student data) and from 0.56 to 0.90 (employer data), above the minimum value of 0.5 as an indication of reliability (Nunnally, 1967). Appendices 4-3 and 4-4 summarize the factor analysis results respectively. Due to small number of cases involved in the pilot and main surveys, confirmatory factor analysis cannot be conducted in a valid manner. Instead, a split-half technique, Spearman-Brown Prophecy Formula, using an odd-even split, was used to reconfirm the internal consistency of the two sets of questionnaires. This technique was used for each domain to determine item consistency. A high correlation among items suggests that the items measure the same trait, and are internally consistent. The results show that the alpha coefficient estimates per scale for each domain range from 0.68 to 0.88 (employer survey) and from 0.61 to 0.79 (student survey) respectively. The same formula was used to estimate the reliability of the entire questionnaires and to determine the split-half reliability. The estimated reliability of the two sets of questionnaires is over 0.6, indicating that no theoretical differences exist among the scales, and that the elements of the instruments are reliable and consistent.

Identification of college factors for the student survey

As stated above, eight college factors with 27 variables explaining 65.2 percent of the overall variance were defined by the original 54 variables that were loaded most heavily (loading>0.50) on them. Details of the results of factor analysis are shown in Appendix 4-3. Here are the brief descriptions:

Factor 1. Qualities of teaching staff. This factor explains 11.34 percent of the variance in the data with an eigenvalue of 6.43. This factor is loaded with five items in relation to staff qualities and teaching methods including 'Teaching staff are skilful in conducting lectures', 'Teaching staff are encouraging', 'Teaching staff are fair', 'Teaching staff are knowledgeable in their field' and 'Instruction is student-centred'.

Factor 2. Teaching & learning materials. With an eigenvalue of 2.90, this factor explains 10.24 percent of the variance. The factor contains five items on whether the course is stimulating and vocationally specific, and whether the curriculum, syllabus and teaching materials are up-to-date.

Factor 3. Student organization. Explaining 9.84 percent of the variance with an eigenvalue of 2.23, this factor is loaded with three items on activities organized by the Students' Union, departmental societies and clubs.

Factor 4. Student support services. Explaining 7.43 percent of the variance with an eigenvalue of 1.66, this factor is loaded with three variables in relation to the counselling service, activities for the self-development as well as the medical service.

Factor 5. Relationship with staff and classmates. Loaded with four items, this factor accounts for 7.05 percent of the variance with an eigenvalue of 1.43. The four items include the friendliness and helpfulness of the teaching staff, and relationship with teaching staff and classmates.

Factor 6. College facilities. This factor deals with three fundamental learning facilities of the vocational institute (i.e. laboratories and computing facilities) and accounts for

6.99 percent of the variance with an eigenvalue of 1.36.

Factor 7. Languages support. Another two items relative to the courses on strengthening language ability and self-access facilities for improving language standards explain 6.38 percent of the variance with an eigenvalue of 1.17.

Factor 8 Physical education services. Explaining 5.47 percent of the variance with an eigenvalue of 1.06, this factor is loaded with two variables on physical education programs and athletic facilities.

In sum, the eight factors identified (See Appendix 4-3) are almost the same as the nine college dimensions examined in the literature review and methodology chapters, with the following exceptions:

- (1) There is an omission of the college environment and administrative support to students in the newly identified factors.
- (2) Physical education services has been singled out as an individual factor (Factor 8). This is supported two past studies conducted Kuh & Pace (1999) and Larry (1993) which treated physical education services as an independent dimension though more research (Eriguchi, 1995; Friedlander et al., 1993; Nord, 1997; Pace, 1984) put the two items (i.e. 'a wide range of physical education programs are provided' and 'the athletic facilities are of great variety') of this dimension into 'Student Support Services'.
- (3) It should also be highlighted that two items (i.e. teaching staff are 'friendly' and 'helpful') originally put under the dimensions of 'Qualities of teaching staff' are loaded to the dimensions of 'Relationship with staff & classmates' in the results of this factor analysis. Though some researchers put these two items under the dimension of 'Qualities of teaching staff' (Eriguchi, 1995; Friedlander et al. 1993), Larry (1993) revealed the same pattern as this study that they were grouped under the dimension of 'Relation with staff and classmates'. In other words, both of the above arrangement were sensible and supported by empirical data.

Identification of factors for the employer survey

The same data-analysis technique applied to the student data was used to identify and confirm the key factors of the 49 attributes of the employer survey. From the VARIMAX rotated factor matrix, four factors representing 71.81 percent of the explained variance were extracted. Four factors with 21 variables were defined by the original 49 variables that were loaded most heavily (loading>0.50) on them. For details of the results of factor analysis, please refer to Appendix 4-4. Below are the brief descriptions:

Factor 1. Personal management skills. This factor explains 22.01 percent of the variance in the data with an eigenvalue of 5.61. This factor is loaded with seven items in relation to work attitudes and self-management qualities including ‘accountable toward change’, ‘energetic and persistent and with initiative’, ‘able to identify and suggest new ideas’, ‘able to work flexibly’, ‘aware of their own strengths and weaknesses’, ‘dedicated’ and ‘conscientious’

Factor 2. Academic skills. With an eigenvalue of 4.61, this factor explains 20.15 percent of the variance. The factor contains seven items of language abilities and learning skills, such as ability to communicate clearly in written English, in oral English, Cantonese, and Putonghua; abilities to ‘listen, understand and learn’; ‘read, comprehend and use written materials’ and ‘manage information’.

Factor 3. Technical knowledge and skills. Explaining 15 percent of the variance with an eigenvalue of 2.92, this factor is loaded with four items on abilities to ‘cope with the technical and practical demands’, ‘acquire new technical and practical skills’, and ‘show initiative and creativity in solving technical problems’ and ‘consciousness of

occupational health and safety’.

Factor 4. Teamwork skills. Loaded with three items, this factor accounts for 14.66 percent of the variance with an eigenvalue of 1.94. The three items include the ability to ‘understand and work within the culture of the group’, ‘seek a team approach’ and ‘being pleasant to work with’.

In sum, the four factors identified namely ‘technical skills and knowledge’, ‘personal management skills’, ‘academic skills’ and ‘teamwork skills’ are exactly the same as those found in the literature review.

The eight and four factors identified above respectively form the foundation of the rest of data presentation and analysis, such as their expectations, level of expectations met and overall degree satisfaction.

4.3 Expectations

One of the specific research questions of the present study is about the expectations of students and employers on vocational education. The findings on the attributes students and employers valued highly provide answers to this crucial question. Indeed, judgments about quality should be based on the views of stakeholders and is defined as ‘meeting or exceeding their needs and/or expectations’ in this study. To provide quality service, the provider needs to be clear about customer expectations and this subsection presents data on the expectations of the IVE(Tsing Yi) students and employers.

Student expectations

According to the raw data and weighted scores of student expectations of the college

(Appendix 4-5) and the average of the scores for each item in the eight factors identified in the previous section (Appendix 4-6), the students held the following expectations of the college:

Rank	College Factors	Average number of respondents considered the factor important (<u>M</u> out of 350)
1	Teaching and Learning Materials	152.8
2	College Facilities	79.7
3	Qualities of Teaching Staff	77.4
4	Relationship with staff and classmates	45.3
5	Student Support Services	20.7
6	Student organization	11.7
7	Physical Education Service	10.5
8	Languages Support	2.5

Table 4.8 The average scores of importance levels for the eight college factor (in order); N=350

The above table (Table 4.8) shows that most respondents considered the factor of ‘teaching and learning materials’ important (M=152.8). As shown in Appendix 4-6, quite a large number of the students were concerned about the relevance of the curriculum and teaching materials, for example, ‘the course is vocationally specific’ (N=326); ‘the syllabus is up-to-date’ (N=207); ‘the curriculum is up-to-date’ (N=157) and ‘teaching materials are up-to-date’ (N=44). It may be because most of them plan to enter the workplace after graduation. It is reasonable that students choosing the vocational education sector wish to acquire technical skills and knowledge that is helpful for job-hunting.

The second factor ‘college facilities’ was valued highly by the respondents ((M=79.7, See Table 4.8). Appendix 4-6 shows that among the three items of this factor, most of the students were concerned about the computing and laboratory facilities. Probably due to their much emphasis on the academic aspect, most of them might look for

well-established teaching and learning equipment.

The third factor valued highly by the respondents was the 'qualities of teaching staff' ($\underline{M}=77.4$). It is worthwhile to notice that among the five items of this factors, comparatively more respondents considered the professionalism of the teaching staff important. For example, a total of 132 and 115 respondents considered 'teaching staff are knowledgeable in their field' and 'teaching staff are skilful in conducting lectures' important respectively (See Appendix 4-6). Further to the discussion of the previous two factors, this again confirmed the hypothesis that students were much concerned about the academic aspect of college life.

On the other hand, the students found the student organization ($\underline{M}=11.7$), physical education service ($\underline{M}=10.5$) and languages support ($\underline{M}=2.5$) least important. Appendix 4-6 further shows that 'courses on strengthening language ability are appropriate to meet your needs', an item under the language support, was not chosen by any students in their three most valued attributes ($N=0$).

Employer expectations

In respect of employer expectations on the vocational training, their views on which employability skills they valued most and least are shown in Appendix 4-7. In this section, the three attributes chosen by employers as most important are considered in relation to the four key factors identified from the literature and confirmed by the factor analysis. The average of the scores for each item in each factor was calculated giving a measure of importance of each factor (Appendix 4-8). Of the four factors, most of the employers found 'personal management skills' important ($\underline{M}=14.71$); 'academic skills' comes second ($\underline{M}=10.71$) and relatively few respondents considered 'technical skills

and knowledge' ($\underline{M}=5.5$) and 'teamwork skills' ($\underline{M}=0.67$) important. The findings show that employers held the following expectations of the IVE(Tsing Yi) graduates:

Rank	Factors (Employability Skills)	Average number of respondents considered the factor important (\underline{M} out of 72)
1	Personal Management Skills	14.71
2	Academic Skills	10.71
3	Technical Knowledge & Skills	5.5
4	Teamwork Skills	0.67

Table 4.9 The average scores of four Factors of Employability Skills / Personal Attributes (in order)

Table 4.9 shows that most respondents considered the personal management skills important ($\underline{M}=14.71$). As shown in Appendix 4-8, quite a large number of the employers were concerned about positive work attitudes like 'accountability toward change' (N=47), 'being energetic and persistent and with initiative' (N=26), 'ability to identify and suggest new idea (N=14) and 'being dedicated' (N=10).

The second factor valued highly by the employers is the academic skills ($\underline{M}=10.71$). Appendix 4-8 shows that among the seven items of this factor, most of the respondents were concerned about graduates' English language ability: effective communications in both oral and written English (N=25 respectively) and ability to listen, understand and learn (N=21).

On the other hand, few employers find the technical knowledge and skills ($\underline{M}=5.5$), and teamwork skills ($\underline{M}=0.67$) important. Appendix 4-8 further shows that some attributes were not chosen by any employer in their three most valued attributes for example, 'ability to understand and work within the culture of the group' and 'being pleasant to work with'.

To conclude, of the four factors of employability skills, more employers found ‘personal management skills’ and ‘academic’ skills important and relatively few respondents considered ‘technical knowledge and skills’ and ‘teamwork skills’ important. By comparing the above data, mismatches between student and employer expectations may be identified. If their expectations on the vocational service are inconsistent, the teaching staff and college management may face difficulties in setting the priority to meet them, and this may also give rise to a problem with the idea of fitness for purpose. These issues will then be addressed in the analysis chapter.

4.4 Level of expectation met

‘To what extent are their expectations met?’ is a crucial specific research question of the study. The findings of this part address this significant area and analysis of the data is meaningful to the service improvement. For example, those rated less favorably by the students and employers would be the areas for improvement.

Students’ perceptions of college attributes

The results of the students’ perceptions of the service provided by the IVE(Tsing Yi) are presented in Appendix 4-9. Table 4.10 presents their views in order of their average scores, with the highest average score showing the most favoured of the college factors.

Rank	College Factors	Mean Scores (SD)
1	Relationship with Staff and Classmates	3.69 (0.86)
2	Physical Education Services	3.23 (1.01)
3	Qualities of Teaching Staff	3.15 (0.87)
4	Teaching and Learning Materials	3.12 (0.91)
5	Student Support Services	2.93 (0.92)
6	Languages Support	2.73 (0.93)
7	College Facilities	2.70 (1.11)
8	Student organization	2.42 (0.99)

Table 4.10 The average scores of eight college factors (in order) (N=350)

'Relationships with staff and classmates' was the factor that was rated most favorably among the eight factors ($\underline{M}=3.69$). This factor contained four items and most students agreed that their relationships were good with classmates and teaching staff. It is worthwhile to highlight that students were very satisfied with their relationships with classmates ($\underline{M}=3.9$) and teaching staff ($\underline{M}=3.56$), and also with the friendliness ($\underline{M}=3.68$) and helpfulness ($\underline{M}=3.6$) of their teachers.

Secondly, the 'physical education service' was ranked second by the students ($\underline{M}=3.23$) in terms of satisfaction level. For example, they rated the two items on the variety of physical education programs ($\underline{M}=3.22$) and facilities ($\underline{M}=3.24$) favorably. 'Qualities of teaching staff' was the college factor that was rated third most favorably among the eight factors ($\underline{M}=3.15$). Among the five items of this factors, students agreed that their teachers were knowledgeable in their field ($\underline{M}=3.52$), but students were less satisfied with the teaching and assessing skills like lecturing skills ($\underline{M}=3.04$) and fairness ($\underline{M}=3.06$) of their teachers.

Moreover, students ranked the 'teaching and learning materials' fourth ($\underline{M}= 3.12$) among the eight factors. Similar to the range of ratings on items under the top three factors examined previously, the range of ratings on five items of this factor is small, ranging from 3.24 (The course is vocationally specific) to 3.07 (The course design is stimulating). This reflected their general satisfaction with the curriculum and teaching materials.

"Student support services' was the college factor that was rated in the middle band of the eight factors ($\underline{M}=2.93$). Compared with the ranges of ratings on items of the top four factors examined previously, the range of ratings on three items of this factor is large,

ranging from 3.14 (The medical service meets your needs) to 2.69 (Room for your self-development is provided).

Of the eight factors, students were less satisfied with the 'languages support' (\underline{M} =2.73) including two items in relation to the self-access facilities (\underline{M} =2.77) and provision of courses on strengthening language ability (\underline{M} =2.69). Finally, students were least satisfied with the college facilities (\underline{M} =2.70) and student organization (\underline{M} =2.42). In light of consistently low ratings of the individual items under these two factors, immediate follow-up actions on both areas are required.

Employers' perception of graduates' abilities

This subsection deals with the analysis of employers' perceptions of the four factors of employability skills / personal attributes of graduates. The average of the mean scores for each item was calculated for each factor, giving a measure of employer satisfaction with each factor. The table below (Table 4.11) presents the four factors in order of their average scores, with the highest average score showing the most favored of the factors. For the average scores of individual attributes under these factors, please refer to Appendix 4-10.

Rank	Factors of Employability Skills / Personal Attributes	Mean Scores (SD)
1	Teamwork Skills	3.65 (0.74)
2	Personal Management Skills	3.44 (0.53)
3	Technical Knowledge and Skills	3.23 (0.51)
4	Academic Skills	3.16 (0.42)

Table 4.11 The average scores of four factors of Employability Skills / Personal Attributes (in order)

As shown in the above table, the employers rated teamwork skills of the graduates most

favorably ($\underline{M}=3.65$). The personal management skills ($\underline{M}=3.44$) and the technical knowledge and skills ($\underline{M}=3.23$) came second and third respectively whereas graduates' academic skills ($\underline{M}=3.19$) were rated the lowest among the four factors. With reference to Table 4.11 and Appendix 4-10, further analysis of the data is presented below.

'Teamwork skills' was the factor that was rated most favorably among the four factors ($\underline{M}=3.65$, See Table 4.11). On the whole, employers thought that the IVE(Tsing Yi) graduates were able to 'understand and work within the culture of the group', 'seek a team approach', and were 'pleasant to work with'. The mean score of all the three items was greater than 3 in the five point scale (Appendix 4-10).

'Personal Management Skills' was the factor rated second most favorably ($\underline{M}=3.44$, See Table 4.11). Of the seven individual items of this factor (See Appendix 4-10), employers were more satisfied with graduates' work attitudes (as indicated by the mean greater than 3.5). For example, they agreed that the graduates were conscientious and dedicated. In general, employers were satisfied with all items under this factor. In addition to the two attributes mentioned above, the employers also found that the IVE(Tsing Yi) graduates possessed abilities in generating new ideas, working flexibly, taking initiative, being accountable towards change, and self-awareness (as indicated by the mean greater than 3).

Thirdly, 'technical knowledge and skills' ranked third among four ($\underline{M}=3.23$, See Table 4.11). As shown in Appendix 4-10, the mean scores for the four items indicate that as a whole, the employers rated the technical knowledge and skills of the graduates positively as the mean values of all the four items are above 3 (middle value of a 5-point scale). The following two items were rated most favorably: 'conscious of occupational

health and safety' ($\underline{M}=3.47$) and 'able to cope with the technical and practical demands placed on him/her/them' ($\underline{M}=3.47$). It was interesting to find that employers were less satisfied with graduates' abilities to acquire new and practical skills ($\underline{M}=3.11$), and to show initiative and creativity in solving technical problems ($\underline{M}=3.01$).

Finally, of the four factors, employers were least satisfied with the academic skills ($\underline{M}=3.16$, See Table 4.11) of the graduates. Although this factor had the lowest mean score, five of the seven items making up the factor consisted of academic skills that most employers thought that graduates demonstrated, as indicated by the mean ratings greater than 3 (See Appendix 4-10). As stated in the same appendix, the two academic skills that employers thought were most likely to be lacking in their graduates were relating to language abilities namely the abilities to 'communicate clearly in written English' ($\underline{M}=2.89$) and 'communicate effectively in oral Putonghua' ($\underline{M}=2.52$). It was also interesting to note that the range of the mean ratings of the seven items under this factor was large (1.11) and both extremes were related to communication. Of the seven items under this factor, the most favored was their oral Cantonese ($\underline{M}=3.63$) whereas the least favored one was their oral Putonghua ($\underline{M}=2.52$).

To sum up, the respondents rated three of the four factors (teamwork skills, personal management skills, and technical knowledge and skills of the graduates) positively. Unlike the consistently high ratings given to the sub-items of these three factors, the employers rated the seven items under the factor of academic skills divergently, ranging from the mean ratings of 3.63 (oral Cantonese) to 2.52 (oral Putonghua). Among the twenty-one individual attributes, the most popular item was 'able to understand and work within the culture of the group' ($\underline{M}=3.90$). This item signifies the success with which new graduates were able to accommodate to the work situation as distinct from

the personal skills and attributes they possessed. The other item, which was ranked second highest was ‘able to communicate effectively in oral Cantonese’ (\bar{M} =3.71). Graduates success in communicating in oral Cantonese must be set against employers’ perceptions that graduates were less competent in their use of oral Putonghua (\bar{M} =2.52) and written English (\bar{M} =2.89). However, results show that the standard deviations (SD) of these two items were very high, indicating a wide spread of employers’ responses for them.

4.5 Overall degree of customer satisfaction

The findings in this part provide answers to the research questions on the overall degrees of student and employer satisfaction, and the relative importance of the attributes affecting their overall satisfaction level. The data are important since views of students and employers can be treated as an indicator of the effectiveness of the quality assurance system and strategies taken by the IVE(Tsing Yi) staff.

Students’ overall satisfaction with the IVE(Tsing Yi)

Overall degree of satisfaction with the college

In respect of students’ overall satisfaction with the college, Table 4.12 indicates that nearly half of them (48.6%) were satisfied / strongly satisfied with their college life (N=154 and 16 respectively).

Overall satisfaction with the college	Frequency	Percent
Strongly satisfied	16	4.6
Satisfied	154	44.0
Neutral	135	38.6
Dissatisfied	41	11.7
Strongly dissatisfied	4	1.1
Total	350	100.0

Table 4.12 Perceptions of the overall satisfaction with the college (N=350)

In order to provide a clearer and more comprehensive picture of the above data, their overall satisfaction with the college by gender, by the academic departments of the students and by the overall grade of higher diploma obtained are then analyzed. To begin with, the results of Independent-Samples T Test shows that there was no gender difference in their overall satisfaction with the college ($t=0.008$, $df=348$, $p=.993$). The results of the One-Way ANOVA (analysis of variance) indicate that there is no statistically significant difference in the overall college life satisfaction among the students of different departments ($F=1.666$, $df=4.196$, $p=.157$).

In respect of its relationship with the 'overall grade of HD obtained', the One-Way ANOVA (analysis of variance) procedure was used again and Appendix 4-11a shows significant differences in the overall satisfaction level among those obtaining an overall grade of distinction, credits and pass ($F=7.709^{***}$, $df=2$). Appendix 4-11b and 4-11c further confirms that there was a slight statistically significant relationship between the overall grade and their overall satisfaction level ($r=0.189^{***}$). In general, the better the results they obtained, the more they were satisfied with their college life.

Relative importance of college factors to graduates' overall satisfaction

The analysis of data on relative importance of college factors to the overall degree of satisfaction of students can provide an answer to the research question on the significant factors affecting student satisfaction. As stated previously, eight newly identified college factors were currently treated as independent variables (IVs) and were entered into regression analysis to determine their relative importance in contributing to levels of satisfaction. In other words, the perception of the overall satisfaction with the college became the dependent variable (DV) of the analysis. With reference to Appendix 4-12, the analysis shows the significance of the results with their

associated beta coefficients, which can be used to explain the relative importance of IVs in contributing to the variance in DV.

To begin with, the correlation coefficient of the five independent variables (F1, F2, F5, F6 and F7) on dependent variable is 0.32, indicating that respondents have positive and moderately high overall satisfaction levels with the five factors. Secondly, the coefficient of determination is 0.32, reflecting the fact that around 32 percent of the variance of students' overall satisfaction is explained by the five factors. In behavioral statistics, an *R* square above 0.30 is considered as acceptable (Lewis, 1985). Thirdly, the *F*-ratio has a value of 22.388 at the significance level of 0.000, meaning that the results of the regression model could hardly have occurred by chance. Thus, the regression model shown in Appendix 4-12 is said to have achieved a satisfactory level of goodness-of-fit in predicting the variance of students' overall satisfaction in relation to the seven college factors and any of the seven college factors is important in contributing to students' overall college life satisfaction.

The five college factors represent different weights to the variance of graduates' satisfaction with the college. Take F5 (Relationship with staff and classmates ($\beta=0.25^{***}$)) as an illustrative example, results show that a one-unit increase in satisfaction with F5 would lead to a 0.25 unit (25%) increase in the respondents' overall satisfaction with the institute, provided that other variables were held constant. Further details are presented below.

The results show that respondents consider that 'relationship with staff and classmates', 'teaching and learning materials', and 'language support' are the most influential factors. In addition, the 'college facilities' and 'staff qualities' are the other two

influential factors in determining the college life satisfaction of the students.

Employers' overall satisfaction with the graduates

Overall degree of satisfaction with the IVE(Tsing Yi) graduates

In response to the research question on the overall degree of customer satisfaction, employers were asked to give a summative rating of their performance of IVE(Tsing Yi). As shown in Table 4.13, slightly more than half of the employers (51.4 %) were satisfied / strongly satisfied with the overall performance of the graduates (N=36 and 1 respectively) and none of them were strongly dissatisfied / dissatisfied with their performance.

Overall degree of satisfaction	Frequency	Percent
Strongly dissatisfied / dissatisfied	0	0
Neutral	35	48.6
Satisfied	36	50.0
Strongly satisfied	1	1.4
Total	72	100.0

Table 4.13 Overall degree of satisfaction with the IVE(Tsing Yi) graduates

Employers' satisfaction with the graduates from five different departments

As shown in Table 4.14, the employers were most satisfied with the graduates of the Industrial Engineering Management department ($\bar{M}=3.8$) but were least satisfied with those of the Engineering discipline ($\bar{M}=3.33$). In respect of assessing employers' satisfaction with the IVE(Tsing Yi) graduates from different departments in a statistical way, the One-Way ANOVA procedure was used to test whether the average employer satisfaction levels with the graduates of different academic departments were equal.

Overall degree of satisfaction with the graduates	$\bar{M}(\text{SD})$
Main discipline of the new recruits (N)	
IEM (N=10)	3.8 (0.4216)

CN (N=8)	3.75 (0.7071)
BA (N=18)	3.61 (0.5016)
CM (N=12)	3.42 (0.5149)
ENG (N=24)	3.33 (0.4815)
Total (N=72)	3.52 (0.53)
F(4, 67)=17.628, p=.098; Mean scale: 5=strongly satisfied; 1=strongly dissatisfied	

Table 4.14 Employers' satisfaction with the graduates from five different departments

As stated above, there was no statistically significant difference in the employers' overall degree of satisfaction with graduates of different departments [$F(4, 67)=17.628$, $p=.098$]. That means employers' satisfaction with the graduates from five departments did not differ significantly from one another.

To sum up, the employers were generally satisfied with the overall performance of the graduates. Results indicated that there was no statistically significant difference in employers' overall degree of satisfaction with graduates of different departments.

Relative importance of the four factors of employability skills to employers' overall satisfaction with the IVE(Tsing Yi) graduate

The analysis of data on the relative importance of the four factors of employability skills to employers' overall degree satisfaction with the IVE(Tsing Yi) graduates answers one of the specific research question on the significant factors affecting employer satisfaction. With reference to Appendix 4-13, the analysis shows the significance of the results with their associated beta coefficients, which can be used to explain the relative importance of IVs in contributing to the variance in DV. To begin with, the correlation coefficient of the three independent variables (F1, F2 and F3) on dependent variable is 0.26, indicating that respondents have positive and moderate overall satisfaction levels with the three factors. Secondly, the coefficient of determination is 0.26, reflecting the fact that around 26 percent of the variance of

employer' overall satisfaction with the graduates is explained by the three factors. This is slightly lower than an acceptable value 0.30 of R square as suggested by Lewis (1985). The relatively low R square is probably due to small sample size ($N=72$) and less than half of the attributes (i.e. 21 of the original 49 variables) being captured by the factor analysis (See Appendix 4-4). Thirdly, the F -ratio has a value of 38.17 at the significance level of 0.000, meaning that the results of the regression model could hardly have occurred by chance. Thus, the regression model shown in Appendix 4-13 is said to have achieved a satisfactory level of goodness-of-fit in predicting the variance of students' overall satisfaction in relation to the three factors and any of the three factors is important in contributing to employers' overall satisfaction with the college.

The results of the regression analysis in Appendix 4-13 further show that three of the four factors were significant. Of them, Factor 3 ($\beta=0.27^{***}$), Factor 2 ($\beta=0.24^{**}$) and Factor 1 ($\beta=0.17^{**}$) represented different weights to the variance of employers' overall degree of satisfaction. The results for 'Technical knowledge and skills' (Factor 3) show that a one-unit increase in satisfaction with this factor would lead to a 0.27 unit (27%) increase in the respondents' overall satisfaction with the graduates, provided that other variables are held constant. In other words, among the factors of attributes, this factor was the most influential variable to predict employers' overall degree of satisfaction with the IVE(Tsing Yi) graduates when the effects of other variables (i.e. Factor 1, 2 & 4) were controlled for. In addition, there were two more variables that made the same statistically significant contribution. In order of importance, they were the 'academic skills' and the 'personal management skills'.

Summary of the two sets of data

As the primary research focus is to investigate and chart the matches and mismatches

between stakeholder expectations in vocational education, two questionnaires collected the views of students and employers on the most valued expectations in vocational education. The student survey found that the students valued items relating to their academic life highly, such as 'teaching and learning materials', 'qualities of teaching staff' and 'college facilities' while the employer surveys revealed that most of respondents expected the graduates to be equipped with positive work attitudes, English language ability and self-management abilities.

The students were generally satisfied with the service provision of IVE(Tsing Yi) most of them, except 'language support', 'college facilities', and 'student organization'. While the employers were satisfied with most of the graduates' 'teamwork skills', 'personal management skills', and 'technical knowledge and skills', they rated their 'academic skills', in particular communication in 'oral Putonghua' and 'written English' unfavourably. On the whole, both groups were satisfied with the service provision of the college.

As reflected by the two sets of data and the quality framework of IVE(Tsing Yi), there are quality gaps in the customer expectations and service provision. Other than identifying the mismatches and generating areas for further improvement in the service provision, the data will be used to examine the effectiveness of the quality assurance mechanism of the IVE(Tsing Yi), and the validity of various conceptions of quality (like the model of fitness for purpose view and the model of continuous improvement) and various quality improvement approaches centred on student, performance indicators and stakeholders.

CHAPTER 5

ANALYSIS AND DISCUSSION

By analyzing the two sets of data presented in the findings chapter and comparing the findings with the literature, this chapter aims to critically examine various concepts of and approaches to quality improvement; and to analyze the data based on a framework of issues in quality management, such as the customer expectations, their perception of the service provision and the effectiveness of the quality assurance system of IVE(Tsing Yi).

5.1 Conceptions and views of quality

The literature review identified five common views of quality, namely exceptionality, fitness for purpose, value for money, perfection and continuous improvement (Harvey and Green, 1993). Among them, the fitness for purpose and the process of continuous improvement views are widely adopted in the post-secondary sector. Based on the findings, this part examines critically these two conceptions of quality:

Fitness for purpose view of quality

The research findings reflect a problem with the idea of fitness for purpose when the needs of different groups of customers are inconsistent. As shown in the survey data, students' significant concern about the acquisition of technical skills and knowledge, as reflected by the top ranks of teaching and learning materials, college facilities and qualities of teaching staff by students (See Table 4.8 and Appendix 4-6) is not consistent with the findings of the employer survey that the respondents are looking for graduates possessing generic skills like those in relation to personal management (See Table 4.9 and Appendix 4-8).

In this context, a quality vocational service means accommodating the needs of both students and employers. It seems that there is little discussion on how to deal with the conflicting views of the key stakeholders like this. For example, Craft (1993) proposed an alternative view of fitness for purpose that might avoid the issue of determining who

were higher education's customers by returning the emphasis to the institution. In this case, quality can be defined in terms of the mission of the IVE(Tsing Yi) but it seems that Craft's suggested solution does not help too much here due to the dual emphases on the roles of students and employers in the mission statement of the institute -- to 'provide **students** in Hong Kong with high quality vocational education and qualifications of international standards which are directly applicable to the requirements of Hong Kong's **employers** and the community' (VTC, 2004). Indeed, it is not easy for the service provider to strive for a balance of the needs of both parties whereas adopting either a student-centered approach or an industry-oriented approach is also inadequate. However, regular reviews with both parties may identify the gaps and divergent views like this, which are very meaningful to service planning and improvement. This is particularly important to the IVE(Tsing Yi), as the needs of the industry have been changing rapidly while the standards and basic skills of students have been deteriorating (HKU, 1997).

Process of continuous improvement

TQM emphasizes the concept of prevention from which quality is ensured by managing processes so as to ensure conformity and consistency. Consistency is perceived as fundamental to the management of any production process, as variation implies a departure from the customer specifications, and therefore compromises quality. By relating the findings to the quality framework of IVE(Tsing Yi), the concept of 'continuous improvement' is problematic.

Despite much stress on meeting customer expectations and continuous quality improvement, this study finds that a significant number of students are not satisfied with the IVE(Tsing Yi). The student survey reveals that more than one-tenth (12.8%) of the respondents are strongly dissatisfied or dissatisfied with the college (Table 4.12). This is sound evidence to challenge the validity of the notion of a process of continuous improvement and at least signifies some limitations in the applications of this concept. Two possible hindrances in its implementation at IVE(Tsing Yi) are examined below. Firstly, only the senior management can get access to the reports of the customer feedback and few staff members have received relevant staff training on how to provide

quality service. Probably due to ineffective communication at the IVE(Tsing Yi), quality issues might become 'lost'. This problem was reported by the Higher Education Quality Council (1993) as a result of a lack of staff training or a weak team or leadership.

According to West-Burnham (1993), the success of continuous quality improvement was largely dependent on leadership, clear and meaningful tasks and the level of technical and social skills available, which could be enhanced in a sharing and cooperative environment.

The second problem may be the difficulty of involving all the staff in the process. This might result in quality gaps and stakeholders' dissatisfaction (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Hinchliffe, 1991; Johnson, 1996; Larry, 1993; Nord, 1997). In view of this, the management needs to pay attention to this area, and particularly to involve those who may be resistant to this concept. For example, some staff members may be lacking in initiative in updating their knowledge and understanding towards the field, while some other staff members may be resistant to adopting a customer-oriented approach.

The above cases were proposed by Sallis (1996) for the institutions to adopt a continuous improvement approach like fear of unknown, fear of doing things differently, fear of trusting others, and fear of making mistakes (p.44). As Sallis (1996) and West-Burnham (1993) stated, these fears were largely associated with 'uncertainty' and 'threat' that could be minimized by keeping the staff informed of any changes and involving them in the process as far as possible. In addition, well planned staff training, strong leadership, well designed processes and diligent monitoring were required (Lomax et al., 1996; National Institute of Standards and Technology, 2002; West-Burnham, 1993). Freeman (1993) describes this as a systematic approach to identify needs for on-going improvement and honing working methods to meet those needs.

5.2 Quality improvement approaches

Quality education can be measured in different ways, from different perspectives and in different contexts. Developed out of various QA and TQM concepts, several quality improvement approaches are introduced in the literature review namely the performance indicators approach, the exceptional approach, the student-centred approach and the stakeholders-centred approach. Except for the exceptional approach on which the study does not provide any data for analysis, this part discusses the validity of the other three approaches according to the research findings.

Performance indicators approach

As suggested by Craft (1994), there were three common elements that underpinned the practice of quality assurance namely institutional self-appraisal, performance indicators and peer review. The VTC QA system was largely determined by that of the performance indicators. And the quality assurance framework was drawn up with reference to the Baldrige Quality Program, from which a system of clearly prescribed performance indicators is to be instituted and targets set for each annual plan cycle. This study reveals some problems of this approach:

Not prescriptive

Though this study finds that the top concerns of the two key stakeholders have been incorporated into the framework of performance indicators of the institute, there is no clear and standard procedure or strategies to meet those specifications. This is also a major problem for the performance indicators approach that could only reflect how well an institution was operating but failed to inform on how to improve or achieve the service standard (Sallis, 1996; West-Burnham, 1993). If the quality assurance stresses solely performance measurement and monitoring as in the case of the IVE(Tsing Yi), there is a possibility that staff do not know what to do next. Thus, training and development are essential to build the awareness and knowledge of quality, and equip the staff with practical skills that facilitate change and improvement.

In essence, quality management and improvement are part of an evolving process that

require a change in culture and all the staff should be committed to improving the service quality continuously (Elliott, 1996; Sallis, 1996). Putting this into the context of this study, all the staff should aim at meeting and exceeding the expectations of employers and students.

Specifying quality service

This study reveals another problem with the quality system of the institute concerning the specification for a quality service, which is also a weakness of the performance indicator approach. As stated in the PI framework of the IVE(Tsing Yi), students' needs are defined in five areas namely 'teaching and learning', 'facilities and equipment', 'provision of information and support services', 'campus environment' and 'publicity and logistics'. This study however finds that few students consider some of these items important like the 'facilities for improving language standards', 'logistical support to students' (application and registration procedure, procedure for applying transcripts) and 'Student organization'. In other words, some performance indicators of the existing QA system may not represent the felt needs and expectations of the students, and the most effective means to close those gaps is to review those measures regularly. According to the Higher Education Quality Council (1993), the quality assurance system was itself subject to adjustment and review in the light of experience, and the process of changes needed to be formalized in order to secure a continuous basis of agreement.

Student-centered approach

Quality education was best defined by student requirements (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Hatton & Sedgemore, 1992; Larry, 1993; Nord, 1997; Pace, 1984). Taking the University of Syracuse as an example, a practice of 'customer as king' approach was introduced in order to assure quality, and to attract and retain students. Though the student-centered approach has been regarded as dominant in quality education since 1980s', this study does not generate supporting evidence. That means the provision of quality service cannot consider solely the views of students.

Lack of understanding about the subject matter

This study shows this is a problematic view of quality management. As the largest VE provider, IVE is expected to offer vocationally specific courses and provide skills on new knowledge areas. As such, the professional input of the staff is very crucial. Since most of the lecturers of the IVE(Tsing Yi) are experts from industry or work closely with industry, they should have a better understanding about market trend and manpower planning than the students. This is supported by the results of the student survey. Most of the respondents do not grasp the trend of the labour market and the core qualities that the employers are looking for.

Stakeholders-centered approach

Multiplicity of customers and stakeholders

There is a continuing debate between providing job-specific vocational training versus fostering a much wider general education at post-secondary level. Despite the positioning of a vocational education institute in the post-secondary sector, the course's planning and delivery cannot solely rely on the employers' views. Instead, the findings suggest a more complex reality that is different from an assumption that students and employers will see quality in the same way, or quality can be defined by either of these two parties. Rather, the findings suggest that quality should be viewed from a multi-dimensional or layered approach, and vocational education needs to be responsive to different stakeholders. This argument is supported by Garlick et al.(1993) and Craft (1994), who found 'no single customer but a multiplicity of customers and stakeholders' in higher education (p.171). Cheng (1996) extends this argument by stating that the evaluation of education quality involves the basic consideration of the multiplier effect: multiple goals of education being evaluated, multiple indicators, multiple evaluation methods and multiple participants in evaluation. The multiplier effect implies a matrix of quality evaluation by various combinations of these components.

As informed by the results of this study, though students and employers hold different expectations on the service provision of IVE(Tsing Yi), knowledge about the key customers' views is useful for the service provider to make an informed decision. Based

on the survey results, the senior management and college staff can plan better for the course characteristics, delivery, facilities, selection of staff, staff development and quality assurance system. For example, the program design and delivery mode need to incorporate the development of students' self-learning abilities, language abilities and self-confidence as far as possible, as informed by the findings of the employer survey.

5.3 Quality assurance system and quality improvement strategies

Various approaches to quality generate different sets of performance measures and emphasize different focuses (Barnett, 1994) such as an external quality control or an internal quality improvement process. Since the year 2001, a quality assurance policy has been introduced to the VTC and it is largely dependent on self-assessment and an internal improvement mechanism. The whole process of service planning and delivery such as teaching and learning and resource management is put under constant review for quality improvement. This brings out a common question then, 'What aspects of the education process should be the focus of quality assurance activities?' According to Craft (1994), the following are the possible answers: inputs to the teaching & learning (like facilities and staff profiles); inputs to the personal & social development (like provision of student affairs service); process itself (like curriculum and delivery) and outputs (like skills and knowledge of the graduates). And the choice of inputs, process or outputs was depended on the interest of the individual stakeholders. For example, governments and employers were most concerned about the outputs, while students were most concerned about the learning process. This study reveals a different view.

Quality improvement system

Despite variations in expectations of the different stakeholder groups found by the study, the following common areas of concern are derived from the two surveys and the quality framework of the IVE(Tsing Yi). Firstly, they (students, employers and the Institute) all consider the provision of adequate and advanced facilities essential, in particular computing equipment. Secondly, they indicate the importance of the professional qualifications and personal qualities of the teaching staff. Thirdly, they also indicate that the course design needs to be vocational-specific, challenging and up-to-date. In

addition, key skills or transferable skills are essential though their choices over those skills are different.

Referring back to the input-process-output system introduced previously, it is interesting to note that the above areas cover all the three stages of the education system, namely the input, the process and the output. This is different from the views of Craft (1994) that the employers were concerned about part of the system (i.e. number and qualities of the graduates) while the students were interested in another part of it like the learning process.

Quality management needs to be conceptually more sophisticated and the three stages stated above are closely interrelated. As Barnett (1994) suggests, a sole emphasis on quality output was not adequate since quality could not be inspected into a product or service only at the end of the line (i.e. graduation). An effective quality management system should achieve the objectives of both quality control and assurance (i.e. detection of defects and prevention). This study confirms that the inputs (like college facilities and the standard of the new entrants) are important but do not correspond to, nor ensure 'quality'. Rather, there is a need to have a properly designed quality assurance process that can maximize the potential of the inputs and ensure quality output.

As discussed previously, a good model of quality assurance should satisfy the requirements of both accountability and self-improvement. Accountability stresses meeting external demands. For instance, nowadays more and more post-secondary institutions upload the key information and achievements in their homepages or publish annual reports to conclude what has been done and achieved, and most importantly show how quality education is delivered. Meanwhile, self-improvement emphasizes internal monitoring, using a self-regulation mechanism to assure better quality. This study however finds that the QA system of the VTC can fulfil part of both requirements.

In order to meet both the demands of external accountability and internal improvement, the institution should be able to show clearly what quality assurance measures have been

taken, such as regular reviews with the service users, preparation for self-evaluation or quality improvement reports, and most importantly the access of these reports by the key stakeholders. In addition, the institution should pay attention to good practices of their own or other institutions, and examine how these practices can be transferred. With this mechanism, the service provision will be improved continuously and be responsive to different stakeholders.

Quality improvement strategies

The findings of the student survey show that the respondents are generally satisfied with essential college categories like the 'qualities of teaching staff', 'teaching and learning materials', and 'relationship with staff and classmates', with an exception of the 'college facilities'. Similarly, the employer survey also reveals that the IVE(Tsing Yi) students are perceived to possess the attributes that are most valued by the employers, except two on communication in oral Putonghua and written English. As such, most of the students and employers express satisfaction with the overall service provision of the IVE(Tsing Yi). This implies that the Institute may be aware of and has tried to respond tactfully to customer expectations. This is consistent with what Deming (1986) suggests, with the aim of meeting customers' needs and delighting them with its quality, the service provider should find out what they want and expect, and ensure the production method and products attain the highest standards. The methodology adopted in the present study involves developing measures of quality. As such, it adds to what the formal processes offer and breaks new ground in quality assurance. Below are some strategies to achieve quality and ensure the process of continuous improvement.

As discussed previously, regular review of the service provision is significant. The evaluation should cover the following five areas, namely, the course content, delivery of the content, college's caring level / understanding to the students, student activities and facilities (including the teaching and non-teaching ones). Further to the collection of the users' views, senior management needs to respond to them as far as possible. This was highlighted in the report of the Higher Education Quality Council (1993). According to the report, it was important for the staff to accept reflection on practice and the systematic

identification of strengths and weakness was a routine part of professional practice. Ball (1995) supports this by stating that quality carries no meaning except that the product or services fit the customer. Indeed, the evaluation process forms a significant mechanism for maintaining and enhancing the quality and standards of the service. It requires that the stakeholders like staff, students and employers have prompt access to data and to feedback on the course. It is also useful to keep them informed of how their comments and recommendations were taken into account in the processes of decision making and action.

Secondly, the contribution of this research to the field lies in systematically assessing the key attributes from the views of students and employers. For example, the instruments were developed from reviewing relevant literature, collecting feedback from experts and customers, and piloting. These assessments fulfil several functions. First, identification of significant student and employer expectations is valuable for the design and delivery of vocational education. Second, insight into their expectations forms the basis of developing strategies for marketing the programmes to the potential customers (i.e. senior secondary students) and the end users (i.e. employers). Third, this study helps explain the complexities of customer satisfaction. For example, this study reveals a statistical relationship between some customer expectations on the vocational education and their satisfaction.

5.4 Quality system and policy in the VTC

As highlighted in the mission statement, 'students' and 'employers' are the key stakeholders of the IVE. There is a pressing need for the institute to attract more students to enroll the courses, which was supported by the views of Coleman and Bush (1994): '... institutions are facing a more competitive environment where their survival ultimately depends on attracting sufficient numbers of students...' (p.68). In respect of responding to employers, it is essential for the institute to provide what the market needs and to plan the courses according to manpower forecast. This was similar to other cases of vocational institutes like the Polytechnic of Wales (RTRU, 1987), which adopted an industry-oriented approach due to their unique positioning (Gilbert et al., 1998; Page,

1998; Shaw et al., 1998). In response to an increasing emphasis on ascertaining customer needs, the institute needs to understand customer expectations, respond to them, assess customer satisfaction and improve service quality.

Lack of understanding about the customer needs

Despite the implementation of the quality assurance system for several years, the survey results show that the quality framework fails to reflect customer needs. This is shown by comparing the performance indicators of the IVE with the data on expectations of the employers and students. For example, the student survey that few students consider several PIs in relation to 'provision of information and support services', 'campus environment' and 'publicity and logistics' important, such as the facilities for improving language standards, logistical support to students and Student organization (See Table 4.8 and Appendix 4-6). On the other hand, the employer survey reveals that the respondents look for graduates possessing generic skills like those in relation to personal management (See Table 4.9 and Appendix 4-8) rather than the technical ones, which was much emphasized in the PI framework of the institute. The above mismatches imply an urgent need for the staff to gain more understanding of the customer need and/or expectation.

Mismatches between the customer expectations and service provision

According to the data on students' expectations, the respondents value highly 'teaching and learning materials', 'college facilities' and 'qualities of teaching staff' in terms of the number of students considering them important (Appendix 4-6). In general, these factors are closely related to the academic aspect of students' college life. It so happens that similar findings were obtained from several studies on student satisfaction presented in the literature review chapter (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Nord, 1997; Pace, 1984). Students are concerned about their academic probably because most of them plan to enter the workplace after graduation. It is reasonable that students choosing the vocational education sector wish to acquire technical skills and knowledge that are helpful to job-hunting. That may also explain the reason for them to look for well-established teaching and learning equipment such as computing and laboratory facilities. Conversely, the findings show that few students

consider several of the performance indicators in the framework of the IVE important. Some examples, such as the 'logistical support to students' and 'Student organization' (See Table 4.8 and Appendix 4-6), are discussed above.

The employer survey of this study finds that most of the respondents expect the IVE(Tsing Yi) to produce graduates with positive work attitudes (Taylor, 1990; The Conference Board of Canada, 1999), English language ability (Department of Labor, U.S., 1991; The Conference Board of Canada, 1999) and self-management abilities (HKU, 1997) a finding consistent with those of similar studies. When these results are compared with the performance indicators framework of the IVE, some gaps are also identified. For example, the acquisition of technical knowledge and skills is much stressed in the quality framework of the institute but the employer survey reveals that most of the respondents valued personal management and academic skills (See Table 4.9 and Appendix 4-8) more highly than the technical ones.

Factors leading to quality gaps

The lack of understanding shown above was partly explained by the constraints in performing this task, such as difficulties in responding to different expectations of heterogeneous customer backgrounds in particular under the rapid-changing environment, as suggested by Craig (1998), Driscoll *et al.* (1998), Elliott (1996) and Johnson (1996). Secondly, some staff may be resistant to maintaining close contacts with customers and responding to them proactively, or do not see the need to do so.

According to Coates (1998) and Gerson (1993), such reactivity would yet create quality gaps. It was worthwhile to relate this to the QA system implemented at the IVE(Tsing Yi). TQI has been introduced to assure the service quality, and several performance indicators have been developed and implemented by phases in the past few years. Among them, meeting students' and employers' needs is embedded in the QA system. As examined above, this study finds that there are gaps between the real needs of customers and what have been specified in the quality framework. This deserves the immediate attention of the management.

Aligning customer & provider expectations

As discussed above, reducing the gap between the customer (i.e. students and employers) expectations and the IVE(Tsing Yi) service provision is an effective means to improve and guarantee quality. Based on the research findings, below are some strategies to achieve a closer alignment of customers and provider expectations by a better understanding of customer expectations.

First of all, the employer survey component of this study finds that the respondents expect IVE graduates to possess a range of generic employability skills. Unlike the results of several overseas studies (RTRU of the Polytechnic of Wales, 1987; Roizen and Jepson, 1985; SCAN, Department of Labor, 1991), this study reveals that the employers value personal attributes more highly than technical skills. The findings also show that some IVE(Tsing Yi) graduates do not meet such 'generic' requirements. In consequence, the employers have to spend resources on providing staff training in areas like self-confidence and written English ability. To better serve employers' expectations, the college needs to allocate more resources to strengthen students' language ability and self-management abilities, and to foster their positive work attitudes.

Secondly, the student survey finds that most of the respondents consider teaching and learning materials, college facilities and qualities of teaching staff essential. In general, these items are closely related to the acquisition of technical skills and knowledge. Students are concerned about the acquisition of technical knowledge and skills, probably owing to their intention to work upon graduation. It is reasonable that students choosing vocational higher education wish to be equipped with necessary skills and knowledge that is helpful to the job-hunting (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Nord, 1997; Pace, 1984). This unsurprising finding is also supported by Drew et al. (1992) who finds that students pursuing vocational education generally expected a passport to career options and preparation for survival as a technically competent worker.

Aligning different customers' expectations

Top concerns of the two key customers are in complete contrast. 'Language ability' for example is the college factor the least number of student respondents consider important while the employer survey shows a different view that effective communication in both oral and written English are valued highly by employers.

In view of such divergence, the IVE(Tsing Yi) staff have to strive for a right balance between the needs of these two key stakeholders. It is reasonable to infer that serving the needs of the employers is of higher priority for a number of reasons. Firstly, it is reflected in the main objective of the institute which is to provide high quality vocational education and training which is directly applicable to the requirements of Hong Kong's employers (Lee, 1999). Secondly, the student survey finds that the respondents are keen to acquire technical skills and knowledge that are useful to their career development. It is thus necessary for the course board to review the curriculum from time to time based on the market needs and highlight the practicability of those learning content. For example, teaching staff need to communicate with students in order to stress the importance of language ability for job-hunting and career development. This is particularly relevant in Hong Kong where the language standard of the graduates was found to be declining (SSRC of the HKU, 1997). Similar research findings of placing a high value on this ability were obtained (ITRU of the Polytechnic of Wales, 1987; Taylor, 1990; Roizen and Jepson, 1985; SCAN, Department of Labor, 1991).

Disconfirmations between customer expectations and perceptions

The IPA framework introduced in the methodology chapter is useful in answering a crucial specific research question (i.e. To what extent are the significant expectations of students and employers met?). As a 5-point Likert scale for students and employers to assess the service performance is used in this study, a score of 3 or above is taken as an indication of satisfaction. Based on the IPA framework, the present study relates perceptions with expectation while dissatisfaction is viewed as a disconfirmation between the two. In other words, the IPA grid is used here to identify the possible disconfirmation.

College Factors	Importance level	Satisfaction level
1 Qualities of teaching staff	3 rd	3.15
2. Teaching and learning materials	1 st	3.12
3. Student organization	6 th	2.42
4. Student support services	5 th	2.93
5. Relationship with staff and classmates	4 th	3.69
6. College facilities	2 nd	2.70
7. Languages support	8 th	2.73
8. Physical education service	7 th	3.24

Table 5.1 Importance of and Satisfaction with the college factors

(Mean scale of the satisfaction level : 5=strongly agree; 1=strongly disagree; Rank: out of 8 factors)

It should be highlighted that the importance level of the eight dimensions shown in Table 5.1 is ranked according to the average of the scores for each item of these dimensions (Appendix 4-6, Table 4.8) and based on the raw data and weighted scores of student expectations of the college (Appendix 4-5), Details of the computation for the importance are stated in Chapter 3 (Section 3.5 Data-processing and analysis) and Chapter 4 (Section 4.3 Expectations). As shown in Table 5.1 and Figure 5.1, this research finds that Factor 6 (College Facilities) falls in Quadrant I and deserves the immediate attention of the college managers. According to the results, respondents find the computing and laboratory facilities very important but are dissatisfied. In addition, the following three factors falling into the Quadrant II (Factor 1. Qualities of teaching staff, Factor 2. Teaching and learning materials and Factor 5. Relationship with staff and classmates) are perceived by the respondents to be of very great importance and very good performance. The IPA model suggests that the management should keep up the good work relating to students' learning and social development.

In Quadrant III, Factor 3 (Student organization), Factor 4 (Student support services) and Factor 7 (Languages support) are regarded as 'low level of importance' and 'low level of performance'. Though the performance levels on a range of support services and Student organization are perceived to be poor, the management should not concentrate here due to a relatively low level of importance. Finally, Factor 8 (Physical education service) at the Quadrant IV is of low importance but has a relatively high level of performance. That means the respondents are generally satisfied with the physical education programs and facilities.

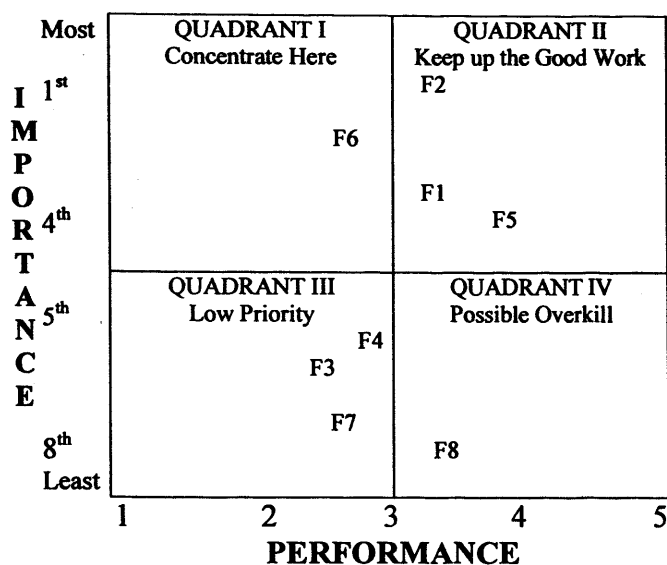


Figure 5.1. Importance-Performance Analysis grid of IVE(Tsing Yi) student survey

Below is the discussion of the results on employers' perception of the graduates' performance in relation to their expectations using IPA. As shown in the Table 5.2, the employers are generally satisfied with all the four factors, as indicated by the mean values of satisfaction level greater than 3, i.e. mid-point). That means the graduates are perceived to possess the attributes that are valued by the employers. And if the mean values are replaced by their ranks, more interesting patterns and meaningful implications can be drawn (See Table 5.2 and Figure 5.2):

Factors of employability skills / personal attributes	Importance level	Satisfaction level (Rank)
1. Personal management skills	1 st	3.44 (2 nd)
2. Academic skills	2 nd	3.16 (4 th)
3. Technical knowledge & skills	3 rd	3.23 (3 rd)
4. Teamwork skills	4 th	3.65 (1 st)

Table 5.2 Importance of and Satisfaction with the graduates by employers

(Mean scale of the satisfaction level: 5=strongly agree; 1=strongly disagree; Rank: out of 4 factors)

The importance level of the four dimensions shown in Table 5.2 is ranked according to the average of the scores for each item of these dimensions (Appendix 4-8 and Table 4.9) and based on the raw data and weighted scores of employer expectations (Appendix 4-7), Details of the computation for the importance are stated in Chapter 3 (Section 3.5

Data-processing and analysis) and Chapter 4 (Section 4.3 Expectations). The data shown in Table 5.2 is analyzed using the IPA framework. First of all, 'academic skills' (Factor 2) falls in Quadrant I and deserves the immediate attention of the college managers.

According to the survey results, the employers find these attributes important but are dissatisfied with graduates' performance on them. The results shown in Appendix 4-10 further reveal that the respondents show dissatisfaction with graduates' communication skills in written English and oral Putonghua. Secondly, 'personal management skills' (Factor 1) falling into Quadrant II is perceived by the employers to be of importance and good performance. That means the employers are satisfied with a range of essential work attitudes like being 'accountable to change', 'dedicated', 'conscientious' and 'able to work flexibly'.

In Quadrant III, technical knowledge and skills (Factor 3) is regarded as 'low level of importance' and 'low level of performance'. This study reveals a surprising finding that work skills like abilities 'to acquire new technical and practical skills' and 'to cope with the technical and practical demands' is not as important as generic skills. In view of this, though the performance on this aspect is perceived to be poor, the management may not concentrate here due to a relatively low importance level. Finally, 'teamwork skills' (Factor 4) at Quadrant IV is of low importance but of relatively high level of performance. As shown in Appendix 4-10, these items are related to social skills in the work setting, including ability to 'work within the culture of the group', 'seek a team approach', and being 'pleasant to work with'. That means the employers are generally satisfied with these interpersonal skills.

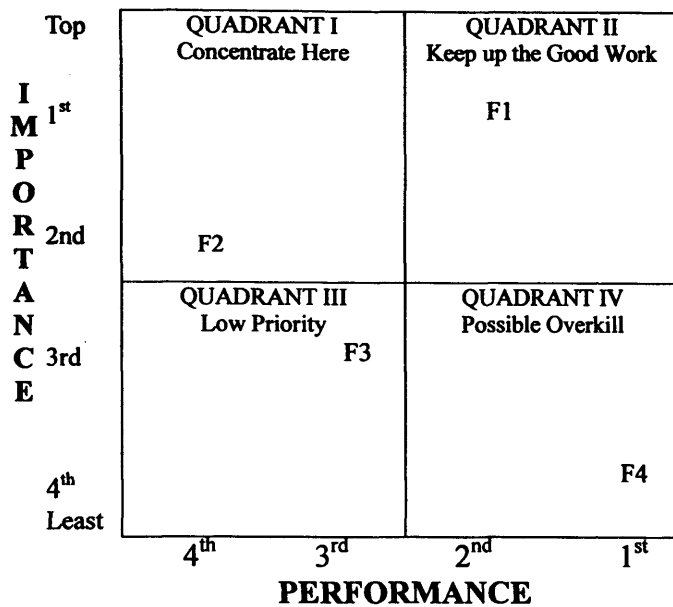


Figure 5.2. Importance-Performance Analysis grid of the IVE(Tsing Yi) employer survey

To sum up, the IPA analysis of the two surveys shows that college facilities, in particular those of the ‘computing and laboratory equipment’, and graduates’ performance on ‘oral Putonghua’ and ‘written English ability’ deserve the immediate attention of the college managers. The analysis also concludes that senior management should keep up the good work on a range of services to improve students’ learning and social development, and the work attitudes of the graduates.

Examining the linkages between individual factors and the overall customer satisfaction

It is difficult to identify which factors lead to satisfaction. As Markham & Hagan (1999) state, there is a need to investigate structural models which could help explain the complexities of customer satisfaction. Indeed, the link between customer expectations on vocational education and their satisfaction has never been tested in the Hong Kong context. The findings of the present study can help address this gap. Specifically, results of regression analysis of the student and employer data indicate the relative importance of various individual factors in influencing the overall degree of satisfaction with IVE(Tsing Yi).

Factors affecting student satisfaction

With reference to Appendix 4-12, five of the eight factors namely relationship with staff and classmates, teaching and learning materials, language support, college facilities and staff qualities are found to be statistically significant in affecting student satisfaction. Some research studies show more or less the same pattern (Eriguchi, 1995; Friedlander et al., 1993; Green et al., 1994; Larry, 1993; Nord, 1997; Pace, 1984). In other words, meeting student expectations on these areas will likely increase their satisfaction and thus can be viewed as keys to providing quality services to them. The top three factors are examined below.

Of the five significant factors, 'relationship with staff and classmates' is the most significant factor in affecting IVE(Tsing Yi) students' overall satisfaction. The results were consistent with several overseas studies (Eriguchi, 1995; Friedlander et al., 1993; Kuh & Pace, 1999; Larry, 1993). It is interesting to look further into the sub-items of this factor. Of the four items, more respondents are concerned about their relationship with the teaching staff rather than that with the classmates (See Appendix 4-6). It was quite unusual to find that students at the post-secondary level placed the relationship with the teaching staff at a higher priority than with their peers one according to the Psychosocial Development Model proposed by Erickson (Hjelle & Ziegler, 1987). Further investigation into this interesting finding is thus suggested.

'Teaching and learning materials' is the second significant factors in affecting students' overall degree satisfaction with IVE(Tsing Yi). This finding was consistent with several quantitative research studies about student satisfaction like Eriguchi (1995); Friedlander et al. (1993); Green et al. (1994); Kuh & Pace (1999); Larry (1993) and Nord (1997). The emphasis on teaching and learning materials may be because students choosing the vocational education sector are eager to acquire technical skills and knowledge. Language support is the third influential factor in affecting students' overall degree satisfaction with the college. The finding was consistent with the results of two relevant studies (Kuh & Pace, 1999; Larry, 1993), and research on employer expectations (RTRU of the Polytechnic of Wales, 1987; Taylor, 1990; Roizen and Jepson, 1985; SCANS,

Department of Labor, 1991). Language ability was valued highly by both students and employers in the local context, probably as a result of a declining language standard of the Hong Kong graduates and a new emphasis of communication skills (SSRC of the HKU, 1997).

Factors affecting employer satisfaction

The regression analysis results of factors affecting employers' overall satisfaction with IVE(Tsing Yi) graduates shown in Appendix 4-13 show that 'technical knowledge and skills' is the most influential factor while the academic and personal management skills are the second and third significant factors in influencing employer satisfaction with the graduates. These three factors can also be viewed as key components contributing to the perceived quality of the graduates. The findings on the significance of these three factors are consistent with similar projects conducted in the local and overseas contexts (HKU, 1997; SCANS, 1991; The Conference Board of Canada, 1999; VTC, 2001).

However, unlike the results of other studies (Roizen and Jepson, 1985; Taylor, 1990; The Conference Board of Canada, 1999; VTC, 2001), this research reveals that 'teamwork skills' is not a significant factor affecting employer satisfaction. A possible explanation of this unusual finding is related to a low expectation of 'teamwork skills'. As indicated in Appendix 4-8, of the four factors, 'teamwork skills' is valued highly by only a few employers and it is thus reasonable to find that this factor is not influential as compared with the others. As this uncommon discovery was completely in contrast to an emphasis on this skills set found by other local and overseas research, further research on such divergence is suggested.

5.5 Summary

To conclude, this study identifies differences between the two key stakeholders and there is no consensus about the desirable balance between generic and vocational-specific skills and knowledge. For example, the students value the acquisition of technical and vocational skills highly whereas the employers find the possession of self-management skills and positive work attitudes more important. Though this brings out a problem with

the idea of fitness for purpose, the findings indicate that vocational education needs to be responsive to different stakeholders. As informed by the results of this study, though different parties hold different expectations of service provision of IVE(Tsing Yi), knowledge about the key customers' views is useful for the service provider to make an informed decision. For example, the gap analysis by IPA reveals that the college facilities, in particular the computing and laboratory equipment, and graduates' performance on 'oral Putonghua and written English ability' deserve the immediate attention of the college managers.

As far as the validity of various quality improvement approaches is concerned, the study reveals problems in the performance indicators approach, in particular that it fails to provide prescriptive suggestions for service improvement and some performance indicators of the existing QA system do not represent the felt needs and expectations of the students. The student-centred approach is also problematic in the sense that the provision of quality service cannot consider solely the views of students due to their lack of understanding about the subject matter.

Furthermore, quality assurance should satisfy the requirements of both accountability and self-improvement. This study however finds that the QA system of the VTC can only fulfill part of both requirements. In response to these limitations, some recommendations on aligning customer and provider expectations, and aligning different customers' expectations are discussed. Other than these, a range of recommendations at the practice, policy and research levels will be made in the concluding chapter.

CHAPTER 6

CONCLUSION

The concluding chapter aims to answer the key research questions and make recommendations for improving the IVE(Tsing Yi) service quality from two perspectives (i.e. students and employers). Following an overview of the research focuses and findings, the theoretical and practical implications of the study will be discussed. This is followed by a discussion on the values and limitations of the study. Finally, recommendations on theories, policy and further research will be made.

6.1 Research focuses and findings

Key research focuses

By collecting the views of the IVE(Tsing Yi) students and employers, the primary purpose of the study is to examine how far the service provision at IVE(Tsing Yi) matches customer expectations and the extent to which IVE's quality assurance systems ensure that service delivery matches or exceeds customer expectations. . Meanwhile, the quality systems of the college have been reviewed. Such analysis is intended to generate recommendations on the improvement of the QA system and the service provision of the IVE(Tsing Yi). As far as the conceptual level is concerned, this study aims to examine the validity of various conceptions of quality (like the purpose view and the continuous improvement view) and various quality improvement approaches (like the student-centred approach and the performance indicators approach). This study was able to address all the above areas.

Findings in relation to the research questions

To answer the research question on the extent to which the service provision at IVE(Tsing Yi) matches customer expectations, the expectations of students and employers on vocational education should be clarified in the first place. The student survey found that the students value items relating to their academic life highly, such as, 'teaching and learning materials', 'qualities of teaching staff' and 'college facilities' while the employer survey reveals that most of respondents expect the graduates to be equipped with positive work attitudes, English language ability and self-management abilities. And all these significant expectations of the students and employers are embedded in the quality framework of the IVE.

In respect of customer perceptions of the service provision of IVE(Tsing Yi), the students rate a wide range of college attributes favorably, except those of the 'language support', 'college facilities', and 'Student organization'. Concerning the views of the employers, the respondents are generally satisfied with graduates' 'teamwork skills', 'personal management skills', and 'technical knowledge and skills'. They perceive their academic skills unfavorably however, in particular graduates' communication in 'oral Putonghua' and 'written English'. It should be stressed that despite dissatisfaction with several attributes stated above, most of the respondents are satisfied with the overall service provided by the college.

As for the relative importance of factors in relation to the overall customer satisfaction level, the student survey finds that five of the eight factors namely 'relationship with staff and classmates', 'teaching and learning materials', 'language support', 'college facilities' and 'qualities of teaching staff' are found to be

statistically significant. The employer survey finds that the 'technical knowledge and skills' is the most influential factor among the four factors while the 'academic' and 'personal management' skills are the second and third determinants of employer satisfaction with the graduates respectively.

It is worthwhile to relate these findings to the QA system implemented at the IVE(Tsing Yi). The institution has introduced a total quality initiative (TQI) in 2001 to assure service quality, and several relevant performance indicators for example student and employer satisfaction have been developed and implemented by phases in the past few years. Though this study finds that the top concerns of the two key stakeholders have been incorporated into the framework of performance indicators, some less valued items are also included and both groups show dissatisfaction with some services or the personal attributes of graduates.

6.2 Implications

As a result of the findings, below are the implications of the study at the theoretical and practice levels:

Theoretical implications

The notion of quality management should be conceptually more sophisticated than is currently found in the literature. For example, the findings suggest a more complex reality where students and employers do not see quality in the same way, and quality cannot necessarily be agreed by either of these two parties. Rather, quality should be viewed from a multi-dimensional or layered approach, and vocational education needs to be responsive to different stakeholders. This is supported by Cheng (1996) who stated that the evaluation of education quality involves multiple goals in relation to the education being evaluated, multiple indicators, multiple evaluation methods and

multiple participants in evaluation. For details of this argument, please refer to Section 5.2 (Quality improvement approaches). In brief, though different parties may have different expectations of service, knowledge about their views is useful for the service provider to develop an informed practice.

Results also find that in spite of variations in expectations of the different stakeholder groups, there are some common concerns among them. For example, they all find facilities, and professional qualifications and personal qualities of the teaching staff essential. They all indicate that the course design needs to be vocational-specific, challenging and up-to-date. Finally, key skills or transferable skills are essential though their choices over those skills are different. These areas cover all the three stages of the education system namely the input, the process and the output. The findings contrast with the views of Craft (1994) who found that the employers were concerned about part of the system (i.e. number and qualities of the graduates) while the students were interested in another part of it, namely the learning process. The findings also indicate that the three stages are closely linked to one another. As shown in the analysis chapter, the inputs (like college facilities and standard of the new entrants) are important but do not correspond to, nor ensure, 'quality' while a properly designed quality assurance process may maximize the potentials of the inputs and ensure quality output.

Policy implications

Vocational education can simultaneously develop technical skills and knowledge relevant to employment and foster the personal development of the students. This study supports a closer link between course design and the labour market. A range of key employability skills / personal attributes valued highly by the Hong Kong

employers are identified. It is crucial to stress the development of those attributes at post-secondary level, regardless of the disciplines and natures of the institutions (for example, universities, vocational training institutes). This can be achieved in at least two ways. The first is the provision of extra-training sessions and students are required to take a certain number of modules before graduation. The second is to embody those elements in each subject. For example, students' communication and thinking skills should be emphasized in the teaching and learning process. It should be highlighted that these two approaches are not mutually exclusive and can be used at the same time.

6.3 Values and limitations

Contributions of the study

This study was significant for the following reasons. Firstly, this is the first local study to analyze student and employer expectations in relation to their degree of satisfaction and in relation to quality assurance in a higher vocational education institution. The methodology adopted in the present study involved developing measures of quality, which are useful for improving the current quality assurance mechanisms. For example, this study reveals several significant factors contributing to customer satisfaction in the vocational education context, and its contribution to the field lies in systematically assessing the key attributes from the views of students and employers.

Secondly, this study has explored whether quality management in education leads to service improvement as it does in the industrial and commercial sectors. A range of meaningful implications at theory, practice and policy levels has been considered. For example, as the concept of quality has emerged in the industrial sector, critical examination of its applications to the education field has been explored. This research

investigates whether the conceptions of quality expressed in terms of fitness for purpose and the process of continuous improvement are applicable to the VE context. Meanwhile, various quality improvement approaches centred on the student, performance indicators and stakeholders in an education setting have also been examined.

As stated in the introductory chapter, IVEs are facing the challenges of increased competition from other institutions or sectors, budgetary constraints, increased accountability and declining graduate standards. This study provides fruitful materials that can generate recommendations on strengthening the system and staff development on the subject. For details, please refer to Section 6.4.

Limitations of the study

Although this study provides insights into customer satisfaction with the vocational education service in Hong Kong it is not without methodological and content limitations. Firstly, the study does not present a perfect representation of all vocational education customers, and it contains several possibilities for sampling bias. This study is based on a cross-sectional design (i.e. samples drawn from the population at one time), which contains limitations compared to longitudinal research (i.e. to collect data more than once from the same sample of respondents). For example, expectation and satisfaction levels of the respondents might change over time and drawing data at a particular period of time might result in overlooking some factors. Taking the student survey as an example, students of different years might have various concerns over the college attributes.

Secondly, the 60% non-respondents were not followed up and these customers might

hold a view divergent from those of the respondents. Thirdly, this study fails to examine the views of the staff. Since the study focuses on quality issues, the research design is incomplete when the perspective of the service providers is not included. In addition, in the present study, focus group discussions were conducted before the main survey. Though this helped to specify the domain of each construct, it did not provide the opportunity to clarify the survey findings.

A survey was adopted as the primary research approach, the limitations included the lack of clarification and the possibility of further probing into issues. There might also be problems arising from self-reports, and little control over the subjects' responses. Despite the inherent limitations, survey was considered practical and appropriate for this study in view of the time, resources and accessibility constraints.

6.4 Recommendations

Recommendations for practice

Results indicate that the QA systems should be reviewed urgently, and more time and effort should be put into understanding the needs and expectations of the IVE(Tsing Yi) students and employers. Below are several specific recommendations to improve the quality assurance system of the IVE(Tsing Yi) and to reduce the gaps between the customers' expectations and service provision:

Quality improvement system as a whole

Though the institution has introduced a TQI to assure service quality since 2001, there is no standard procedure to achieve quality. In response to this observation, the following remedies are suggested. First, a set of operational guidelines and procedures to improve service provision should be developed. Second, staff of different ranks

should be involved in the process of developing the quality improvement measures.

Third, a training package in forms of self-learning materials or workshops should be prepared for all the staff. In addition, the quality improvement systems and procedures need to be reviewed periodically.

Staff training and development on personal qualities, knowledge and skills should be well-planned with a view to building the awareness and knowledge of quality, and equip the staff with practical skills that facilitate change and improvement. According to Elliott (1996), this is one of the major duties of the management to embrace the principle of customer / demand-led culture. The total quality culture can be achieved by stressing the importance of quality improvement and its strategies.

On the other hand, to maintain a closer alignment of customers and provider expectations, the service provider should monitor the core concerns of the two key customers. For example, there should be annual or bi-annual evaluations of the expectations and degree of satisfaction with the service provided by the college.

According to Coleman and Bush (1994), Coleman (1994) and Kotler (1987), periodic review with the customers was the most effective means to identify and close the quality gaps. In this context, regular evaluation of the performance indicators on student and employer satisfaction should be conducted. Further recommendations for service improvement and suggestions on indicators will be examined below.

Input

Senior management should improve the college facilities. Based on the research findings, students have a high level of expectation on the computing and laboratory facilities. Since the IVE(Tsing Yi) emphasizes technical training that can meet labour

market needs, graduates are expected to be equipped with knowledge and skills of the advanced computing and laboratory facilities upon graduation. As IVE(Tsing Yi) specializes in engineering and information technology, it should maintain a high standard of computing and laboratory equipment conducive to effective teaching and learning. Further to the hardware, the qualifications and professional qualities of teaching staff should also be maintained.

Process

Course design and materials should be improved. Results indicate that students expect the course to be challenging, stimulating and vocationally specific. In order to meet their expectation, the design and review of the curriculum should involve students as far as possible. For example, more student representatives should be invited to attend course boards. Last, the curriculum should also be evaluated annually according to the labour market trend and suggestions made by employers should be taken into consideration as well. For example, the respondents generally expect IVE graduates to possess a range of generic employability skills. It is recommended that the 3-year vocational training should put more emphasis on strengthening graduates' generic skills like self-confidence, teamwork skills and problem-solving ability.

Besides, as found in this study, 'language ability' is the college factor the least number of students consider important while the employers valued 'effective communications in both oral and written English' highly. As a vocational education institute, it is essential to equip students with the essential technical and/or employability skills that employers are expecting. The significant role of language ability in facilitating job-hunting and career development should also be highlighted.

Teaching method is another area that should be improved in view of the findings. To improve the quality of students' experience, the management level is expected to devote more efforts to design teaching and training programs (Eriguchi, 1994; Larry, 1993), for example orientation programs for new staff and staff development programs.

To conclude, curriculum and teaching methods should be reviewed. This is what Kotler & Armstrong (1991) suggest, a quality improvement cycle that involves the stages of identifying the quality gap and planning to bridge the gap.

Recommendations at the policy level

The Government should take a lead to encourage institutions to strengthen the training of employment-related skills. It is expected that a more systematic mechanism to identify, review and promote the key skills in the curriculum will be developed if this is enforced by a policy. Meanwhile, the Government should play a more proactive role in forecasting future manpower needs rather than adopt a non-intervention policy. This is particularly essential in the context of vocational education in order to ensure sufficient and suitable manpower supply. As a matter of fact, it takes a long time for institutions to plan and offer new courses. In particular, the processes of designing and validating the programs, and recruiting suitable staff to deliver the courses are inevitably complex.

The Government should also stress the social integration of the courses provided by post-secondary institutions since the higher education sector is commonly viewed as an agent to produce highly qualified manpower that can meet the needs of society and the economy. The graduate employment rate and employers' views on courses may be

possible indicators to guide this element.

Recommendations for further research

Due to the limitations of this research, below are several areas for further exploration. Regular studies on assessing customer needs and their perception of service provision are recommended. By doing so, analysis of customer views over time becomes possible. According to Coleman and Bush (1994), Coleman (1994) and Kotler (1987), quality management and improvement involves a continuous 'dialogue' with customers enabling better understanding of customer need and/or expectation through market research, followed by planning and obtaining customer feedback.

Given the changing nature of the labour market, in particular rapid changes in socio-economical and technological circumstances in Hong Kong, more studies should be conducted to identify training gaps and new training areas; and to explore the values and positioning of vocational education in the post-secondary sector.

More research should also be done to review the demographic data and needs of those who are receiving or have received training at the VTC/IVE(Tsing Yi). Such analysis would help in planning and improving the existing service. Conversely, further study of those who do not choose to receive vocational education should also be conducted. This may be an effective means to increase the market share of the college in the post-secondary sector.

Further research on exploring employees' perceptions of meeting customer expectations as a means to provide quality service is also needed. As suggested by Sallis (1996), quality improvement is about creating a quality culture where the aim of

every member of staff is to delight their customers, and where the structure of their organization allows them to do so. Thus, the perceptions of every staff member are equally significant. Such data is useful for the management's decision-making and/or planning of manpower planning, staff recruitment, induction programs, in-service training programs and development of a quality assurance system.

In the context of vocational education, further study of the dominance of an 'expertise-directed, student-centered, industry-oriented or stakeholder-centred approach' should be conducted. This is particularly useful for the development of vocational higher education. Under the circumstances of intense competition for students among the institutions, students have more choices and their views are increasingly valued. At the same time, the core mission of a vocational education institute is to meet the needs of the industry. The question 'are the roles of these two key customers equally important?' needs further investigation. Finally, more research should be undertaken to examine if vocational education should be responsive to other stakeholders, besides students and employers.

References

- Anderson, G.J. (1990). *Fundamentals of educational research*. London: Falmer.
- Arcaro, J.S. (1995). *Quality in Education*. Delray Beach: St. Lucie.
- Arimoto, A. (1997). Market and higher education in Japan. *Higher Education Policy*, 10(3-4), 190-210.
- Bagwell, S. (1998). Marketing continuing vocational education to small and medium sized enterprises: key issues for higher education. *Innovations in Education and Training International*, 35(3), 216-223.
- Ball, C. (1985). *Fitness for purpose*. Guildford: Society for Research into Higher Education & NFER-Nelson.
- Barrett, L.R. (1996). On students as customers- Some warnings from America. *Higher Education Review*, 29(1), 26-45.
- Barsky, J. (1992). Customer satisfaction in hotel industry: Meaning and measurement. *Hospitality Research Journal*, 16(1), 51-73.
- Bell, J. (1987). *Doing your research project*. Milton Keynes: Open University Press.
- Bell, J, Bush, T., Goodey, J & Goulding, S. (1984). *Conducting small-scale investigations in educational management*. London: Paul Chapman.
- Berger, K.A. & Wallingford, H.P. (1996). Developing advertising and promotion strategies for higher education. *Journal of Marketing for Higher Education*, 7(4), 61-72.
- Best, J.W. and Kahn, J.V. (1986). 'Methods and Tools of Research', in *Research in Education*. London: Prentice-Hall.
- Betz, E.L., Menne, J.W., and Klingensmith, J.E. (1970). The measurement and analysis of college student satisfaction. *Measurement and Evaluation in Guidance*, 2(2), 110-118.
- Biggs, J. (1999). *Quality in Teaching and Learning: Assurance, Enhancement, and*

Feasibility. Paper presented on the 16th Annual Conference of Hong Kong Educational Research Association.

Bowen, D. (2001). Antecedents of consumer satisfaction and dissatisfaction on long-haul inclusive tours- a reality check on theoretical considerations. *Tourism Management*, 22, 49-61.

Briton, D. (1996). Marketspeak: The rhetoric of restructuring and its implications for adult and higher education. *Studies in the Education of Adults*, 28(1), 29-45.

Burgess, R.G. (1989). *The Ethics of educational research*. London: Falmer.

Bush, T. & Coleman, M (1994). *Leadership and strategic management in education*. London: Chapman.

Bush, T. & West-Burnham, W. (1994). *The Principles of Educational Management*. Harlow: Longman.

Buzzell, R.D. & Sisodia, R. (1997). Future prospects for Marketing, in Lehman, G.E. (eds.) *Reflections on the Futures of Marketing*. Cambridge: Marketing Science Institute.

Chapman, R.G. (1993). Brand performance comparatives. *Journal of Products and Brand Management*, 2(1), 42-50.

Cheetham, J. (1992). *Evaluating social work effectiveness*. Buckingham: Open University Press.

Cheng, Y.C. (1996). *The Pursuit of School Effectiveness*. Hong Kong: Hong Kong Institute of Educational Research.

Coates, D. (1998). Marketing of further and higher education: an equal opportunities perspectives. *Journal of Further and Higher Education*, 22(2), 135-142.

Cohen, L. & Manion, L. (1994). *Research methods in Education*. London: Routledge.

Cohen, L., Manion, L. & Morrison, K. (2001). *Research Methods in Education*. London: Routledge.

- Coleman, M. (1994). 'Marketing and external relations', in Bush, T. & West-Burnham, *The Principles of Educational Management*. Harlow: Longman.
- Craft, A. (1994). *International Development in Assuring Quality in Higher Education*. London: Falmer.
- Craig, S. (1998). Customers & Marketing. *Change*, September/October 1998, 34-39.
- Crosby, P. (1979). *Quality is free*. New York: McGraw-Hill.
- Cuttance, P. (1995). Benchmarking in the NSW School System. *Unicorn*, 21(2), 60-61.
- Dill, D. (1997). Markets and higher education: An introduction. *Higher Education Policy*, 10(3-4), 163-166.
- Deming W.E. (1991). *Out of Crisis*. Cambridge: Cambridge University Press.
- Dimmock, C. (2000). *Designing the learner-centred school: A cross-cultural perspective*. London: Flamer.
- Dochy, F. J.R.C., Segers, M.S.R., & Wijnen, W.H.F.W. (1990). *Management information and performance indicators in higher education: an international issue*. Maastricht: Van Gorcum.
- Downey, C.J., Frase, L.E., & Peter, J.J. (1994). *The QE Challenge*. California: Corwin.
- Drew, C.J., Hardman, M.L., & Hart, A.W. (1996). *Designing and conducting research: inquiry in education and social science*. Boston: Allyn and Bacon.
- Drew, S., Nankivell, M.C. & Shoolbred, M. (1992). *Personal Skills- Quality Graduates: Staff and student perceptions of personal skills development in higher education in the U.K.* Birmingham: Staff and Educational Development Association.
- Driscoll, C. & Wicks, D. (1998). The Customer-Driven Approach in Business Education: A possible danger?. *Journal of Education for Business*, 74(1), 58-61.

Easterby-Smith, M., Thorpe, R., & Lowe, A. (1991). *Management Research, An Introduction*. London: Sage.

Easterby-Smith, M., Thorpe, R., and Lowe, A. (1994), 'The Philosophy of Research Design', in Bennnett, N., Glatter, R. and Levacic, R. (eds.). *Improving Educational Management through research and consultancy*. London: Paul Chapman.

Education and Manpower Bureau, HKSAR, (2002). *Quality Education*. Hong Kong: The Printing Department.

Education Commission, Hong Kong Government (2000). *Education Blueprint- For the 21st Century*. Hong Kong: The Printing Department.

Education Commission (2002). *Progress Report on the Education Reform (1): Learning for Life; Learning through Life*. Hong Kong: The Printing Department.

Elliott, G. (1996). *Crisis and Change in Vocational Education and Training*. London: Jessica Kingsley.

Eriguchi, K. (1995). *Student satisfaction with supplementary educational institution: the case of Yobiko*. Michigan: Bell & Howell.

Evaluation Research Society (1980). *Standards for Evaluation*. Washington, DC: Evaluation Research Society.

FEFC (1993). *Assessing Achievement*. Coventry: FEFC.

Fitz-Gerald, J. (1995). Education marketing: the New Zealand way. *Education Marketing*, 5, 28-29.

Foley, P. (1999). Transferable Skills Teaching: contextual pressures and personal dilemmas. *Teaching in Higher Education*, 4(1), 5-25.

Freeman, R. (1993). *Quality assurance in training and education : how to apply BS5750 (ISO 9000) standards*. London: Kogan Page.

Friedlander, J., Murrell, P.H., MacDougall, S. (1993). 'The Community College

Student Experiences Questionnaire', in Banta, T.W. (ed.). *Making a Difference: outcomes of a decade of assessment in higher education*. California: Jossey-Bass.

Fuller, R. & Petch, A (1995). 'The methodological repertoire', in *The reflexive social workers*. Buckingham: Open University Press.

Garlick, F.J., Bramer, M.A., Botten, N., & Lightfoot, I.R. (1993). 'Institutional Quality Indicators: Myths, Mystery or Meaning?', in *Proceedings of the Fifth International Conference on assessing quality in higher education*. Indianapolis: Indiana University-Purdue University.

Gerson, R.F. (1993). *Measuring Customer Satisfaction*. London: Kogan Page.

Gilbert, J. & Reynolds, S. (1998). 'An Institutional Strategy for Transferable Skills and Employability', in Stephenson, J. & Yorke, M. (Eds.). *Capability & Quality in Higher Education*. London: Kogan Page.

Gray, J. (1990). The quality of schooling: frameworks for judgment. *British Journal of Education Studies*, 38(3), 204-23.

Gray, L. (1991). *Marketing education*. Buckingham: Open University Press.

Green, D. (1994). *What is Quality in Higher Education*. Buckingham: Open University Press.

Green, D., Brannigan, C., Mazelan, P., & Giles, L. (1994). 'Measuring student satisfaction: a method of improving the quality of the student's experience?' in Haselgrove, S. (Ed.). *The Student Experience*. Buckingham: SRHE & Open University Press.

Green, D., Brannigan, C., Mazelan, P., & Giles, L. (1998). *The 1998 report on the student experience at UCE*. Birmingham: University of Central England.

Gush, J. (1996). Assessing the role of higher education in meeting the needs of the retail sector. *Education and Training*, 38(9), 4-12.

Harvey, L. Burrows, A., & Green, D. (1992). *Criteria of Quality*. Birmingham: University of Central England.

Higher Education Quality Council (1993). *Some aspects of higher education programmes in further education institutions*. London: Higher Education Quality Council.

Hinchliffe, A. (1991). Marketing Matters: The implications for Educators. *Promoting Education* (4), 14-15.

Hong Kong Baptist University (1999). *New Student Profile 1998-99*. Hong Kong: General Administration Office (HKBU).

Hong Kong Government (2000). *Education Blueprint- For the 21st Century*. Hong Kong: The Printing Department.

Hjelle, L.A. & Ziegler, D.J. (1987). *Personality theories: basic assumptions, research, and applications*. New York: McGraw-Hill.

Hopkins, D. (1994). 'Process Indicators for School Improvement', in *CERI Making Education Count: Developing and Using International Indicators*. Paris: OECD.

Hutchins, D. (1990). *In pursuit of quality: Participative techniques for quality improvement*. London: Pitman.

ITRU (1979). *The A-Z Study: Differences between Improvers and Non-Improvers among young unskilled workers*. Cambridge: Industrial Training Research Unit.

Jenkins, H.O. (1991). *Getting it right: A handbook for successful school leadership*. Oxford: Blackwell Education.

Johnson, D. (1994). *Research Methods in Educational Management*. Harlow: Longman.

Johnson, H. (1996). *Education Marketing: For Academic, For Anoraks, For Everybody*. New York: Prentice-Hall.

Jones, E.A. (1996). *Preparing competent college graduates: Setting new and higher expectations for student learning*. San Francisco: Jossey-Bass.

- Juran, J. (1974). *Quality Control Handbook*. New York: McGraw-Hill.
- Kaufman, R., Alcia, M.R., & Hanna, M. (1993). *Needs Assessment, A User's Guide*. New Jersey: Educational Technology Publication.
- Keever, S. (1998). Building your image on campus. *Journal of Career Planning & Employment*, 58(2), 42-26.
- Kidder, L. (1981). *Research methods in social relations*. New York: Holt-Saunders.
- Kotler, P. (1987). *Marketing*. New York: Prentice-Hall.
- Kotler, P. & Armstrong, G. (1991). *Marketing*. New York: Prentice-Hall.
- Kuh, G.D. (1999). 'Setting the bar high to promote student learning', in G.S. Blimling, E.J. Whitt and Associates, *Good practice in student affairs: Principles to foster student learning*. San Francisco: Jossey-Bass
- Kuh, G.D. & Pace, C.R. (1999). *College student expectations questionnaire (second edition)*. Bloomington: Indiana University Center for Postsecondary Research.
- Larry, H.K. (1993). 'Utilizing Qualitative and Quantitative Techniques to assess student satisfaction in the small liberal arts college', in *Proceedings of the Fifth International Conference on assessing quality in higher education*. Indianapolis: Indiana University-Purdue University.
- Leask, M. & Goddard, D. (1992). *The search for quality: Planning for improvement and managing change*. London: Paul Chapman.
- Leszek K. (1972). 'An overall view of positivism', in Hammersley, M. (ed.). *Social Research: Philosophy, Politics and Practice*. London: Sage.
- Lee, N. (1999). The Direction of Development of Youth Vocational Training. *Journal of Youth Studies*, 2(2), 32-39.
- Lewis, R.C. (1985). Getting the most from marketing research [Part V], Predicting hotel choice: The factors underlying perception. *The Cornell Hotel Restaurant Administration Quarterly*, 26(3), 82-96.

- Liu, S.S. (1995). The contemporary trend of Marketing Chinese Universities in Hong Kong: An incoming rival to British Counterparts. *Higher Education Quarterly*, 49(1), 4-16.
- Lomax, P. (1996). *Quality Management in Education: Sustaining the Vision through action Research*. London: Hyde.
- Lofthouse, M. (1994). 'Managing the Curriculum', in Bush, T. and West-Burnham, W. (eds.). *The Principles of Educational Management*. Harlow: Longman.
- Lumby, J. (1998). Strategic Planning in Further Education: The Business of Values. *Educational Management and Administration*, 27(1), 71-83.
- Lumby, J. (2001). *Managing Further Education*. London: Paul Chapman.
- MacKenzie, S.B. (1986). The role of attention in mediating the effect of advertising on attribute importance. *Journal of Consumer Research*, 13, 174-195.
- Maister, D.H. (1985). 'The psychology of waiting lines', in J.A. Czepiel and M.R. Solomon (Eds.). *The Service Encounter: Manager Employer-Customer Interaction in Service Businesses*. Lexington: Lexington Books.
- Malley, J. (1998). *The Measurement and Meaning of Student Satisfaction in the VET Sector: A Review*. Melbourne: ACER.
- Markham, S. & Hagan, D. (1999). 'Defining Innovation and Best Practice in Teaching', in P. Strooper (ed). *Proceedings of the Third Australian Conference on Education*. Brisbane: ACM Order Department.
- Marsh, J. (1992). *The Quality Toolkit*. London: IFS International.
- Martilla, J.A. & James, J.C. (1997). Importance-performance analysis. *Journal of Marketing*, 41(1), 77-79.
- McGraw, B. (1997). 'Nature and function of educational research', in Hegarty S. (ed.). *The role of research in mature education systems*. Slough: NFER.

- McMillan, J.R. (1986). 'Including satisfaction data in health care marketing information systems', in P.D. Cooper (ed.). *Responding to the Challenge: Health Care Marketing Comes of Age*. Chicago: Academy of Health Services Marketing, American Marketing Association.
- Meek, V.L. (2000). Diversity and marketing of higher education. *Higher Education Policy*, 13(1), 23-39.
- Meek V.L. & Wood, F.Q. (1997). The market as a new strategy for Australian higher education, *Higher Education Policy*, 10(3), 253-274.
- Merriam, S.B. (1988). *Case study research in education: a qualitative approach*. San Francisco: Jossey-Bass.
- Mertens, D.M. (1998). *Research methods in education and psychology*. London: Sage.
- Miller, D. (1983). *Handbook of research design and social measurement*. London: Longman.
- Miller, V. & Cook, J. (1993). A positive action marketing strategy: Meeting student and organization needs in higher education in the 1990s. *Educare*, 45, 22-26.
- Millett, J.D. (1978). *New structure of campus power: success and failures of emergent forms of institutional governance*. San Francisco: Jossey-Bass.
- Moser, C.A. & Kalton, G. (1971). *Survey methods in social investigation*. London: Heinemann.
- Murgatroyd, S. & Morgan, C. (1993). *Total Quality Management and the School*. Buckingham, Open University Press.
- Nadeau, G.G. (1993). 'Criteria and Indicators of Quality and Excellence in Canadian Colleges and Universities: Final Results of a National Study', in *Proceedings of the Fifth International Conference on assessing quality in higher education*. Indianapolis: Indiana University-Purdue University.
- Natanson, M. (1973). *Phenomenology and the social sciences*. New York: Northwestern University Press.

National Institute of Standards and Technology, U.S. Commerce Department's Technology Administration (2002). Homepage on *Baldrige National Quality Program: 2000 Education Criteria for Performance Excellence*, www.quality.nist.gov.

Nord, S.C. (1997). *Student Satisfaction in Oregon Community Colleges*. Oregon: Oregon Institute of Technology.

Nunnally, J.C. (1967). *Psychometric theory*. New York: McGraw-Hill.

Oliver, R.L. (1981). Measurement and evaluation of satisfaction processes in retail settings. *Journal of retailing*, 75(3), 25-48.

O'Shea, J. (1990). Consumer research in higher education. *Promoting Education*, 1, 14-15.

Outward Bound® Hong Kong (2002). *The Spirit: Outward Bound Hong Kong Newsletter*. Hong Kong: Hong Kong Outdoor Activity Centre.

Pace, C.R. (1984). *College Student Experiences*. Los Angeles: UCLA Higher Education Research Institute.

Page, B. (1998). 'The New Capability Curriculum at the University of North London', in Stephenson, J. & Yorke, M. (Eds.). *Capability & Quality in Higher Education*. London: Kogan Page.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1985). A conceptual model of service quality and perceived product quality. *Journal of marketing*, 48, 19-21.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). Multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.

Peter, R.A., & Wilson, W.R. (1992). Measuring customer satisfaction: Fact and artifact. *Journal of the Academy of Marketing Science*, 20(1), 61-71.

Plant, R. (1996). *The marketing of education and training into the commercial or public organizational sector. Is decision based on faith, hope or certainty?*. New York:

Prentice-Hall.

Raven, J. (1984). *Competence in modern society: its identification, development and release*. London: Lewis.

Recruitment & Training Research Unit, The Polytechnics of Wales (1997). *Welsh survey into employers' needs*. Wales: The Polytechnic of Wales.

Reynolds, P.A. (1986). *Academic Standards for Universities*. London: CVCP.

Roizen, J. & Jepson, M. (1985). *Degrees for Jobs: Employer's expectations of higher education*. Guildford: Society for Research into Higher Education & NFER-Nelson.

Rothery, B. (1991). *ISO 9000*. Hampshire: Gower.

Rubin, A. & Babbie E. (1988). *Research methods for social work*. New York: Wadsworth Publishing Company.

Russell, S. (1994). *Education*. London: Kogan Page

Sallis, E. (1993). *Total Quality Management and Education*. London: Kogan Page

Sallis, E. (1996). *Total Quality Management in Education*. London: Kogan Page.

SCANS (1991). *What work requires of Schools: A Scans Report for America 2000*. Washington D C: US Department of Labor.

Scott, D. (1996). 'Methods and data in educational research', in Scott, D. and Usher, R. (Eds.). *Understanding Educational Research*. London: Routledge.

Seaman, J. (1991). Using surveys as a marketing tool. *Promoting Education*, 3, 12-13.

Sethna, B.N. (1982). Extensions and testing of Importance-performance analysis. *Business Economics*, 28-31.

Shaughnessy J.J. & Zechmeister E.B. (1997). *Research methods in psychology*. New York: McGraw-Hill.

Shaw, M., Brimblecome, N., & Ormston, M. (1995). It ain't what you do, it's the way that you do it!. *Management in Education*, 9(1), 26-40.

Shaw, M., Stoney, C., & Green, H. (1998). 'Reconciling Quality and Standards with Diversity', in Stephenson, J. & Yorke, M. (Eds.). *Capability & Quality in Higher Education*. London: Kogan Page.

Smith, D.N., Scott, P., & Lynch, J.E. (1995). 'The role of marketing in the universities and college sector: a study of how marketing is defined and organized in British universities and colleges, as compared with other service sectors', in *Leeds Heist*, 135.

Social Sciences Research Centre, HKU (1997). *Graduate and Employer Curriculum Feedback Project and its impact on career work*. Hong Kong: The University of Hong Kong.

Spicuzza, F.J. (1992). A Customer Service Approach to Advising: Theory and Application. *Nacada Journal*, 12(2), 49-58.

Swenson, C. (1998). Customers and Markets: The Cuss Words of Academe. *Change*, 30(5), 34-39.

Tasker, M. & Packham, D. (1994). Government, higher education and the industrial ethics. *Higher Education quarterly*, 48, 182-193.

Taylor, I. (1990). *Employing Young People: A Survey of Industrialists' Perceptions*. Liverpool: Curriculum Enrichment Programme (University of Liverpool).

The Conference Board of Canada (1999). *Understanding Employability Skills*. Ottawa: Publications Information Centre.

Verma, G.K. & Mallick, K. (1999). *Researching Education: Perspectives and Techniques*. London: Falmer.

Vocational Training Council (1998). *Prospectus (Diploma & Higher Diploma)*. Hong Kong: Vocational Training Council.

Vocational Training Council (2001). *Report on 2001 survey of the managerial competency profile and management training needs of managers and supervisors in the next three years*. Hong Kong: Vocational Training Council.

Vroeijenstijn, A.I. (1991). *Improvement and accountability: navigating between Scylla and Charybdis : guide for external quality assessment in higher education*. Bristol: Kingsley.

Waktin, B.R. (1994). *Planning and conducting needs assessments: a practical guide*. California: Sage.

Welsh (1987). *Survey into Employers' Needs*. Wales: Recruitment & Training Research Unit (The Polytechnic of Wales).

West-Burham, J. (1992). *Managing Quality in Schools: A TQM Approach*. Harlow: Longman.

West-Burham, J. (1993). *Managing Quality in Schools*. London: Longman.

West-Burham, J. (1994). 'Inspection, evaluation and quality assurance', in Bush, T. & West-Burham, J. (eds.). *Principles of Educational Management*. Harlow: Longman.

Williams, G., Liu, S.S., & Shi, Q. (1997). Marketization of higher education in the People's Republic of China. *Higher Education Policy*, 10(2), 151-157.

Williford, A.M. & Moden, G.O. (1993). 'Using Assessment to Enhance Quality', in Banta, T.W. (ed.). *Making a Difference: outcomes of a decade of assessment in higher education*. California: Jossey-Bass.

Winston, G.C. (1997). Why can't a college be more like a firm?. *Change*, 29(5), 32-38.

Woodruff, R.B. & Gardial, S.F. (2000). *Know your customer: New approaches to understanding customer value and satisfaction*. Cambridge: Blackwell.

Wragg, E. (1984). 'Conducting and analysing interview', in Bell, J., Bush, T., Fox, A., Goodey, J. & Goulding, S. (Eds.). *Conducting Small-Scale Investigations in Educational Management*. London: Harper and Row.

Wright, G.H. (1971). 'Two Traditions', in Hammersley, M. (ed.). *Social Research: Philosophy, Politics and Practice*. London: Sage.

York, R.O. (2000). *Building basic competencies in social work research: an experiential approach*. Boston: Allyn & Bacon.

Questionnaire on Assessing Student Satisfaction with the IVE(Tsing Yi)

Introduction: This is an **anonymous** self-administered questionnaire to collect information on factors affecting your satisfaction with college life. Kindly complete and return it to the gowns-collection room (C217).

Purposes: The main purposes of this survey are to assess the key attributes of student satisfaction with the IVE(TY) as well as to find out the relative importance of these factors to students' overall satisfaction.

Content: You will be asked about your background and your perceptions about the attributes of the college, the importance of the college attributes and the your overall satisfaction with the college.

General Instruction: Please answer **ALL** the questions according to the instructions specified at the beginning of each section.

Section 1 Background Information

Instruction: Please supply information about yourself by filling in ● the appropriate space under each question.

1.1 Your department

- ☐ Business Services Management
☐ Construction
☐ Engineering
☐ Information and Communications Technology
☐ Multimedia and Internet Technology

1.2 Your year of admission to the college

- ☐ 1998 ☐ 1999 ☐ 2000 ☐ Others

1.3 Your gender

- ☐ Male ☐ Female

1.4 Your age

- ☐ Under 20 ☐ 20-21 ☐ 22-23 ☐ Over 23

1.5 Your traveling time from home to college (in terms of minutes)

- ☐ Less than 30 ☐ 30-45 ☐ 46-60 ☐ More than 60

1.6 Your HKCEE results (Please calculate the accumulative total of your 6 best subjects: A=5; B=4; C=3; D=2; E=1 and F or below=0)

- ☐ Above 13 ☐ 12-13 ☐ 8-11 ☐ 5-7 ☐ Below 5

1.7 Your highest education attainment before admission to IVE(TY)

- ☐ F.5 ☐ F.6 ☐ F.7 ☐ Foundation Diploma
☐ Diploma ☐ Higher Certificate ☐ Others (please specify: _____)

1.8 Your overall grade of Higher Diploma obtained

- ☐ Distinction ☐ Credit ☐ Pass

1.9 Do you plan further full-time study after graduation?

- ☐ Yes ☐ No

Section 2. Perceptions of the attributes of the college

Instruction: Please rate the following attributes on a 5-point Likert scale ranging from "1" (Strongly disagree) to "5" (Strongly agree). In addition, an option "6" (Don't know) is also provided for those items you are not familiar with. Please indicate your response by filling in ● the appropriate space.

Dimensions	Strongly disagree ←————→ Strongly agree					Don't know
Ratings	1	2	3	4	5	6

	1	2	3	4	5	6
1 Teaching staff are readily available outside the classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 Teaching staff are <u>not</u> skilful in conducting lectures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 Teaching staff are friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 Teaching staff are helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 Teaching staff are encouraging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6 Teaching staff are fair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7 Teaching staff are knowledgeable in their field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 The assessment mechanism is clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 Instruction is <u>not</u> student-centred	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 Teaching methods stimulate students' interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11 The curriculum is <u>not</u> up-to-date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12 The syllabus is up-to-date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13 Teaching materials are up-to-date	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14 The course design is <u>not</u> challenging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15 The course design is stimulating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16 The course is vocationally specific	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17 The college information received before enrolling is sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18 The college information received before enrolling is accurate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19 The application and registration procedure is not well organized	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20 Registration process, procedure of applying for duplicate of grade transcript and replacement of student cards are clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21 Your relationship with teaching staff is good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22 Your relationship with classmates is <u>not</u> good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23 Your relationship with other campus staff is good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24 The counseling service does <u>not</u> meet your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25 The career advisory service meets your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26 Room for your self-development is <u>not</u> provided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27 The cultural programs meet your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28 The medical service does <u>not</u> meet your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29 A range of financial assistance schemes are available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30 A wide range of supporting services are provided like lockers and applications for the MTR card	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31 Physical education programs are <u>not</u> varied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32 The library service meets your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33 The catering services are of high quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34 Main textbooks are <u>not</u> available at the college bookstore	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35 The Students' Union activities meet your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dimensions	Strongly disagree ←-----→ Strongly agree					Don't know
Ratings	1	2	3	4	5	6

	1	2	3	4	5	6
36 Departmental society meets your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37 Clubs (e.g. music and sports clubs) cater for your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38 Courses on strengthening language ability are appropriate to meet your needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39 Self-access facilities for improving language standards are <u>not</u> adequate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40 The athletic facilities are varied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41 Computing facilities are adequate and accessible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42 The laboratory facilities are of a high standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43 The computing facilities <u>do not</u> meet students' needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44 The classroom facilities are of high quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45 The classroom environment is comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46 The physical environment is <u>not</u> attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47 The college environment is caring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48 The campus is clean and neat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49 The study and reading area is sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50 The on-campus amenity area is sufficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51 The college size is optimal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52 The campus design and layout is <u>not</u> attractive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53 The college location is <u>not</u> convenient for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54 The college has a good reputation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3. Importance of the college attributes

Instruction: Among the 54 attributes stated in Section 2, please choose **THREE** items you consider the most important ones. Please input the item numbers (i.e. 1, 2, 3 ...54) into respective boxes and fill in ● the appropriate space as the example.

	Item no.	0	1	2	3	4	5	0	1	2	3	4	5	6	7	8	9
The 1 st important attribute		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The 2 nd important attribute		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The 3 rd important attribute		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4. Perceptions towards the overall satisfaction with the college

Instruction: Please rate your satisfaction with the college on a 5-point Likert scale ranging from "1" (Strongly dissatisfied) to "5" (Strongly satisfied). Please indicate the rating by filling in ● the appropriate space.

Dimensions	Strongly dissatisfied ←-----→ Strongly satisfied				
Ratings	1	2	3	4	5
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

THANK YOU FOR COMPLETING THE QUESTIONNAIRE

Questionnaire on Assessing Employer Perceptions of IVE(Tsing Yi) graduates

Introduction: This is an **anonymous** self-administered questionnaire to collect information on employers' perceptions of the IVE(TY) graduates in their employment. Kindly complete and send it back by the return envelope provided on or before **30 October 2002**.

Purposes: The main purposes of this survey are to solicit employers' views on the performance of the IVE(TY) graduates and the relative importance of different employability skills and personal attributes.

Content: You will be asked about your company background (Section 1), your perceptions of the technical and employability skills of IVE(TY) graduates in your employment (Section 2), your views about the most important skills / personal attributes of IVE(TY) graduates (Section 3), and your overall satisfaction with IVE(TY) graduates (Section 4).

General Instruction: Please answer **ALL** the questions according to the instructions specified at the beginning of each section.

Section 1 Company Background

Instruction: Please write your answers in the space provided or fill in **●** the appropriate space.

1.1 Nature of your Business _____

1.2 Number of staff in your organization _____

1.3 Number of IVE(TY) graduates your organization have recruited in the past three years _____

1.4 The main job nature of these new recruits (please fill in **●** the appropriate space)

- ☐ Engineering
- ☐ Administrative & Management
- ☐ Sales & Marketing
- ☐ Computing
- ☐ Surveying
- ☐ Research & Laboratory Support
- ☐ Others (please specify: _____)

1.5 The main discipline of these new recruits (please put down the number of students that have been recruited from each discipline in the respective spaces)

Business Administration -----	_____
Construction -----	_____
Engineering -----	_____
Information and Communications Technology -----	_____
Multimedia and Internet Technology -----	_____

Section 2. Your perceptions of the technical knowledge & skills and employability skills / personal attributes of graduates in your employment

Instruction: Please rate the following items on a 5-point Likert scale ranging from "1" (Strongly disagree) to "5" (Strongly agree). In addition, an option "6" (not applicable) is also provided for those items you consider not applicable. Please indicate your response by filling in ● the appropriate space.

2.1 Technical Knowledge and Skills

Dimensions	Strongly disagree (1) ————— Strongly agree (5) , Not Applicable (6)
On the whole, the IVE(TY) graduate(s) is/are:	1 2 3 4 5 6
2.1.1 technically knowledgeable	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.2 <u>not</u> possessing competent practical skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.3 able to cope with the technical and practical demands placed on him/her/them	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.4 able to acquire new technical and practical skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.5 <u>unable</u> to solve technical problems within acceptable time limits	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.6 conscious of occupational health and safety	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.7 able to show initiative and creativity in solving technical problems	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.8 aware of the technical developments related to his/her/their profession	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.1.9 aware of ethics and professionalism	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

2.2 Employability Skills / Personal Attributes

On the whole, the IVE(TY) graduate(s) is/are:	1 2 3 4 5 6
2.2.1 confident in him/herself or themselves	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.2 <u>not</u> positive in their attitudes towards learning	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.3 accountable toward change	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.4 positive in their attitudes to change	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.5 <u>unable</u> to recognize and respect diversity	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.6 honest with integrity and personal ethics	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.7 energetic and persistent and with initiative	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.8 <u>unable</u> to set goals and priorities	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.9 able to plan and manage time	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.10 able to identify and suggest new ideas	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.11 <u>unable</u> to communicate clearly in <i>written</i> English	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.12 able to communicate clearly in <i>written</i> Chinese	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.13 able to communicate effectively in <i>oral</i> English	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.14 <u>unable</u> to communicate effectively in <i>oral</i> Cantonese	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.15 able to communicate effectively in <i>oral</i> Putonghua	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.16 able to listen, understand and learn	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.17 able to read, comprehend and use written materials	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.18 <u>unwilling</u> to continue to learn for life	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
2.2.19 able to think critically	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

2.2.20	<u>unable</u> to think creatively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dimensions	Strongly disagree (1) ————— Strongly agree (5) , Not Applicable (6)						
On the whole, the IVE(TY) graduate(s) is/are:		1	2	3	4	5	6
2.2.21	unable to understand and solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.22	able to access and apply specialized knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.23	able to use technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.24	able to manage information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.25	able to use numbers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.26	<u>unable</u> to respect the thoughts and opinions of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.27	able to understand and contribute to the organization's goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.28	<u>unable</u> to understand and work within the culture of the group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.29	able to exercise "give and take"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.30	<u>unable</u> to seek a team approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.31	able to lead when appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.32	able to plan and make decisions with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.33	able to work flexibly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.34	<u>unable</u> to manage him/herself or themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.35	aware of their own strengths and weaknesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.36	<u>not</u> punctual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.37	hardworking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.38	dedicated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.39	conscientious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.2.40	not pleasant to work with	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3. Importance of

technical knowledge & skills and employability skills / personal attributes of graduates

Instruction: Among the technical knowledge & skills and employability skills / personal attributes stated in Section 2, please choose **THREE** items you consider the most important ones and input the item numbers into respective boxes and fill in ● the appropriate space as the example shown below.

		1	2	3	4	5	6	7	8	9
The 1 st important attribute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The 2 nd important attribute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The 3 rd important attribute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4. Your overall satisfaction with the IVE(TY) graduates in your employment

Instruction: Please rate the IVE(TY) graduates on a 5-point Likert scale ranging from "1" (Strongly dissatisfied) to "5" (Strongly satisfied). Please indicate the rating by filling in ● the appropriate space.

Dimensions	Strongly dissatisfied	←	→	Strongly satisfied
Ratings	1	2	3	4
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

THANK YOU FOR COMPLETING THE QUESTIONNAIRE!

Appendix 4-1 Correlations between gender, age and plan for future study

		Gender	Age	Plan for further study
Gender	Pearson Correlation	1.000	.028	.050
	Sig. (2-tailed)	.	.603	.350
	N	350	350	350
Age	Pearson Correlation	.028	1.000	0.203***
	Sig. (2-tailed)	.603	.	.000
	N	350	350	350
Plan for further study	Pearson Correlation	.050	0.203***	1.000
	Sig. (2-tailed)	.350	.000	.
	N	350	350	350

** Correlation is significant at the 0.01 level (2-tailed); N=350.

Appendix 4-2 Rank order and percentage of the samples and graduates in 2001/02 from five disciplines

Department	Students graduating in 2001/2002 (in rank)	Samples of the survey (in rank)
Information and Communications Technology	1 st (27.1%)	3 rd (16.7)
Engineering	2 nd (26.1%)	1 st (33.3%)
Business Administration	3 rd (20.8%)	2 nd (25.0)
Industrial Engineering Management	4 th (15.6%)	4 th (13.9%)
Construction	5 th (10.4%)	5 th (11.1%)
Total	N=960 (100%)	N=72 (100 %)

Appendix 4-3 Factor analysis results with VARIMAX rotation of graduates' perceptions of college attributes.

Employability skills / Personal Attributes	Factor loadings	Communalities	EV	Variance (percent)	Factor mean
(1)			(2)	(3)	(4)
Factor 1 (F1). Qualities of teaching staff ($\alpha=0.82$)			6.43	11.34	3.15
(5)					(0.87)
Teaching staff are skilful in conducting lectures	0.50	0.53			
Teaching staff are encouraging	0.70	0.65			
Teaching staff are fair	0.73	0.65			
Teaching staff are knowledgeable in their field	0.74	0.64			
Instruction is student-centred	0.44	0.63			
Factor 2 (F2). Teaching & learning materials			2.90	10.64	3.12
($\alpha=0.85$)					(0.91)
The curriculum is up-to-date	0.61	0.66			
The syllabus is up-to-date	0.84	0.75			
Teaching materials are up-to-date	0.84	0.79			
The course design is stimulating	0.58	0.53			
The course is vocationally specific	0.56	0.50			
Factor 3 (F3). Student organization ($\alpha=0.82$)			2.23	9.84	2.42
The Students' Union activities meet your needs	0.79	0.74			(0.99)
Departmental society meets your needs	0.81	0.75			
Clubs (e.g. music & sports clubs) cater for your needs	0.81	0.74			
Factor 4 (F4) Student support services ($\alpha=0.72$)			1.66	7.43	2.93
The counselling service meets your needs	0.70	0.65			(0.92)
Room for your self-development is provided	0.69	0.69			
The medical service meets your needs	0.66	0.59			
Factor 5 (F5). Relationship with staff and classmates ($\alpha=0.70$)			1.43	7.05	3.69
Teaching staff are friendly	0.71	0.69			(0.86)
Teaching staff are helpful	0.43	0.63			
Your relationship with teaching staff is good	0.57	0.59			
Your relationship with classmates is good	0.69	0.61			
Factor 6 (F6). College facilities ($\alpha=0.84$)			1.36	6.99	2.70
Computing facilities are adequate and accessible	0.67	0.71			(1.11)
The laboratory facilities are of high standard	0.66	0.66			
The computing facilities meet students' needs	0.67	0.66			
Factor 7 (F7). Language support ($\alpha=0.67$)			1.17	6.38	2.73
Courses on strengthening language ability are appropriate to meet your needs	0.67	0.61			(0.93)
Self-access facilities for improving language standards are adequate	0.79	0.73			
Factor 8 (F8). Physical education service			1.06	5.47	3.24
($\alpha=0.69$)					(1.01)
Physical education programs are varied	0.65	0.66			
The athletic facilities are varied	0.72	0.74			
Total scale reliability (alpha)	0.82				

Notes: (1) 27 attributes captured in eight college factors; (2) EV: Eigenvalue; (3) 65.2 percent of cumulative variance explained; (4) Mean scale: 5=strongly agree; 1=strongly disagree and Standard Deviations are in parentheses; (5) α : Cronbach's alpha; (6) N=350

Appendix 4-4 Factor analysis results with VARIMAX rotation of employers' perceptions of employability skills / personal attributes of IVE(Tsing Yi) graduates

Employability Skills / Personal Attributes (1)	Factor loadings	Communalities	EV (2)	Variance (percent) (3)	Factor mean (4)
Factor 1 (F1). Personal management skills ($\alpha=0.88$) (5)			5.61	22.01	3.44 (0.53)
accountable toward change	0.80	0.66			
energetic and persistent and with initiative	0.87	0.86			
able to identify and suggest new ideas	0.78	0.71			
able to work flexibly	0.73	0.73			
aware of their own strengths and weaknesses	0.52	0.60			
dedicated	0.84	0.81			
conscientious	0.81	0.88			
Factor 2 (F2). Academic skills ($\alpha=0.57$)			4.61	20.15	3.16 (0.42)
able to communicate clearly in written English	0.60	0.53			
able to communicate effectively in oral English	0.81	0.82			
able to communicate effectively in oral Cantonese	0.58	0.64			
able to communicate effectively in oral Putonghua	0.68	0.53			
able to listen, understand and learn	0.88	0.84			
able to read, comprehend and use written materials	0.88	0.81			
able to manage information	0.56	0.54			
Factor 3 (F3). Technical knowledge and skills ($\alpha=0.56$)			2.92	15.00	3.23 (0.51)
able to cope with the technical and practical demands placed on him/her/them	0.86	0.78			
able to acquire new technical and practical skills	0.73	0.75			
conscious of occupational health and safety	0.79	0.72			
able to show initiative and creativity in solving technical problems	0.62	0.56			
Factor 4 (F4) Teamwork skills ($\alpha=0.90$)			1.94	14.66	3.65 (0.74)
able to understand and work within the culture of the group	0.92	0.89			
able to seek a team approach	0.87	0.88			
pleasant to work with	0.89	0.85			
Total scale reliability (alpha)	0.84				

Notes: (1) 21 attributes captured in four college factors; (2) EV: Eigenvalue; (3) 71.81 percent of cumulative variance explained; (4) Mean scale: 5=strongly agree; 1=strongly disagree and Standard Deviations (SD) are in parentheses; (5) α : Cronbach's alpha; (6) N=350

Appendix 4-5 Importance of the college attributes (N=350)

College Item Number (in rank)	Number of respondents consider it the first important	Number of respondents consider it the second important	Number of respondents consider it the third important	Summation of the frequencies of the 3 important attributes	Summation of the weighted scores of three most important attributes
16	61	59	25	145	326
12	47	26	14	87	207
7	24	22	16	62	132
41	20	22	20	62	124
11	41	14	6	61	157
2	22	20	9	51	115
43	9	13	19	41	72
21	10	16	10	36	72
6	13	15	6	34	75
4	7	10	13	30	54
13	5	8	13	26	44
26	5	8	13	26	44
42	5	9	10	24	43
9	8	6	9	23	45
15	2	7	10	19	30
3	8	4	3	15	35
5	5	1	3	9	20
22	3	5	1	9	20
31	0	5	3	8	13
24	0	1	6	7	8
36	1	5	1	7	14
28	0	4	2	6	10
35	1	1	4	6	9
37	2	2	2	6	12
40	0	2	4	6	8
39	1	1	0	2	5
38	0	0	0	0	0

Appendix 4-6 Importance of the college factors with the mean values (N=350)

College Factors with Individual Attributes	Number of respondents consider the item important	Mean value of the college factors
Qualities of Teaching Staff		
2 Teaching staff are skilful in conducting lectures	115	
5 Teaching staff are encouraging	20	
6 Teaching staff are fair	75	
7 Teaching staff are knowledgeable in their field	132	
9 Instruction is student-centred	45	68.4
Teaching and Learning Materials		
11 The curriculum is up-to-date	157	
12 The syllabus is up-to-date	207	
13 Teaching materials are up-to-date	44	
15 The course design is stimulating	30	
16 The course is vocationally specific	326	152.8
Student organization		
35 The Students' Union activities meet your needs	9	
36 Departmental society meets your needs	14	
37 Clubs (e.g. music and sports clubs) cater for your needs	12	11.7
Student Support Services		
24 The counselling service meets your needs	8	
26 Room for your self-development is provided	44	
28 The medical service meets your needs	10	20.7
Relationship with staff and classmates		
3 Teaching staff are friendly	35	
4 Teaching staff are helpful	54	
21 Your relationship with teaching staff is good	72	
22 Your relationship with classmates is good	20	45.3
College Facilities		
41 Computing facilities are adequate and accessible	124	
42 The laboratory facilities are of a high standard	43	
43 The computing facilities meet students' needs	72	79.7
Languages Support		
38 Courses on strengthening language ability are appropriate to meet your needs	0	
39 Self-access facilities for improving language standards are adequate	5	2.5
Physical Education Service		
31 Physical education programs are varied	13	
40 The athletic facilities are varied	8	10.5

Appendix 4-7 Importance of employability skills / personal attributes (Weighted scores, in order)

Level of Importance (in order)	Item Number and Employability skills / personal attributes	Number of respondents consider it the important:			Summation of the frequencies of the 3 important attributes (N= 72)	Summation of the weighted scores of three most important attributes
		1 st	2 nd	3 rd		
1	3. accountable toward change	15	0	2	17	47
2	7. energetic and persistent and with initiative	6	0	8	14	26
3	13. able to communicate effectively in oral English	0	11	3	14	25
4	11. able to communicate clearly in written English	2	9	1	12	25
5	16. able to listen, understand and learn	7	0	0	7	21
6	10. able to identify and suggest new ideas	0	7	0	7	14
7	38. dedicated	0	5	0	5	10
8	TKS 4. able to acquire new technical and practical skills	0	5	0	5	10
9	TKS7. able to show initiative and creativity in solving technical problems	0	3	0	3	6
10	24. able to manage information	0	2	0	2	4
11	TKS3. able to cope with the technical and practical demands placed on him/her/them	0	2	0	2	4
12	39. conscientious	0	0	3	3	3
13	33. able to work flexibly	1	0	0	1	3
14	TKS6. conscious of occupational health and safety	0	1	0	1	2
15	14. able to communicate effectively in oral Cantonese	0	0	0	0	0
16	15. able to communicate effectively in oral Putonghua	0	0	0	0	0
17	17. able to read, comprehend and use written materials	0	0	0	0	0
18	28. able to understand and work within the culture of the group	0	0	0	0	0
19	30. able to seek a team approach	0	0	0	0	0
20	35. aware of their own strengths and weaknesses	0	0	0	0	0
21	40. pleasant to work with	0	0	0	0	0

Appendix 4-8 Importance of the employability skills / personal attributes by four factors with the mean values

Factors of Employability Skills / Personal Attributes with Individual Attributes (Item number)	Summation of the weighted scores of three most important attributes (N)	Mean value of the employability skills / personal attributes factors
On the whole, the IVE(TY) graduate(s) is/are:		
Personal management Skills		
3. accountable toward change	47	
7. energetic and persistent and with initiative	26	
10. able to identify and suggest new ideas	14	
33. able to work flexibly	3	
35. aware of their own strengths and weaknesses	0	
38. dedicated	10	
39. conscientious	3	14.71
Academic skills		
11. able to communicate clearly in written English	25	
13. able to communicate effectively in oral English	25	
14. able to communicate effectively in oral Cantonese	0	
15. able to communicate effectively in oral Putonghua	0	
16. able to listen, understand and learn	21	
17. able to read, comprehend and use written materials	0	
24. able to manage information	4	10.71
Technical knowledge and skills		
TKS 3. able to cope with the technical and practical demands placed on him/her/them	4	
TKS4. able to acquire new technical and practical skills	10	
TKS6. conscious of occupational health and safety	2	
TKS7. able to show initiative and creativity in solving technical problems	6	5.5
Teamwork skills		
28. able to understand and work within the culture of the group	0	
30. able to seek a team approach	2	
40. pleasant to work with	0	0.67

Appendix 4-9 Perceptions of the college attributes by eight factors

College Factors (Mean value of the college factor) with Individual Attributes	Perception of the individual college attribute	Standard Deviation
Qualities of Teaching Staff (Average= 3.15)		
2 Teaching staff are skilful in conducting lectures	3.04	0.87
5 Teaching staff are encouraging	3.17	0.85
6 Teaching staff are fair	3.06	0.85
7 Teaching staff are knowledgeable in their field	3.52	0.84
9 Instruction is student-centred	2.97	0.95
Teaching and Learning Materials (Average= 3.12)		
11 The curriculum is up-to-date	3.14	0.99
12 The syllabus is up-to-date	3.09	0.88
13 Teaching materials are up-to-date	3.08	0.87
15 The course design is stimulating	3.07	0.77
16 The course is vocationally specific	3.24	1.03
Student organization (Average= 2.42)		
35 The Students' Union activities meet your needs	2.36	1.05
36 Departmental society meets your needs	2.36	0.97
37 Clubs (e.g. music and sports clubs) cater for your needs	2.58	0.96
Student Support Services (Average= 2.93)		
24 The counselling service meets your needs	2.99	0.87
26 Room for your self-development is provided	2.69	0.98
28 The medical service meets your needs	3.14	0.90
Relationship with staff and classmates (Average= 3.69)		
3 Teaching staff are friendly	3.56	0.83
4 Teaching staff are helpful	3.90	1.02
21 Your relationship with teaching staff is good	3.68	0.80
22 Your relationship with classmates is good	3.60	0.80
College Facilities (Average= 2.7)		
41 Computing facilities are adequate and accessible	2.66	1.18
42 The laboratory facilities are of a high standard	2.90	0.96
43 The computing facilities meet students' needs	2.45	1.18
Languages Support (Average= 2.73)		
38 Courses on strengthening language ability are appropriate to meet your needs	2.69	0.89
39 Self-access facilities for improving language standards are adequate	2.77	0.97
Physical Education Service (Average= 3.23)		
31 Physical education programs are varied	3.22	1.05
40 The athletic facilities are varied	3.24	0.96

(Mean scale: 5=strongly satisfied; 1=strongly dissatisfied; N=350)

Appendix 4-10 Employers' perception of performance of the IVE(TY) graduates by four factors

Factors of Employability Skills / Personal Attributes with Individual Attributes (Item number)	Perception of graduates' performance Mean (M)	Standard Deviation (SD)
On the whole, the IVE(TY) graduate(s) is/are:		
Personal management skills (Average=3.44)		
3. accountable toward change	3.44	0.60
7. energetic and persistent and with initiative	3.47	0.69
10. able to identify and suggest new ideas	3.35	0.65
33. able to work flexibly	3.32	0.84
35. aware of their own strengths and weaknesses	3.38	0.68
38. dedicated	3.51	0.65
39. conscientious	3.64	0.77
Academic skills (Average=3.16)		
11. able to communicate clearly in written English	2.89	0.60
13. able to communicate effectively in oral English	3.13	0.75
14. able to communicate effectively in oral Cantonese	3.63	1.29
15. able to communicate effectively in oral Putonghua	2.52	0.64
16. able to listen, understand and learn	3.39	0.92
17. able to read, comprehend and use written materials	3.30	0.63
24. able to manage information	3.30	0.50
Technical knowledge and skills (Average=3.23)		
TKS 3. able to cope with the technical and practical demands placed on him/her/them	3.31	0.57
TKS4. able to acquire new technical and practical skills	3.11	0.92
TKS6. conscious of occupational health and safety	3.47	0.77
TKS7. able to show initiative and creativity in solving technical problems	3.02	0.76
Teamwork skills (Average=3.65)		
28. able to understand and work within the culture of the group	3.90	0.91
30. able to seek a team approach	3.42	0.92
40. pleasant to work with	3.64	0.88

(Mean scale: 5=strongly satisfied; 1=strongly dissatisfied; N=72)

Appendix 4-11 Relation between students' overall satisfaction with the college and the overall grade of HD obtained

Overall satisfaction with the college		Sum of Squares	df	Mean Square	F	Sig.
By Overall grade of HD obtained N=350	Between Groups	9.418	2	4.709	7.709***	.001
	Within Groups	211.956	347	.611		
	Total	221.374	349			

4-11a Overall satisfaction with the college by Overall grade of HD obtained (One-way ANOVA)

Overall grade of HD obtained	Mean	N	Std. Deviation
Distinction	3.95	22	.65
Credit	3.45	137	.83
Pass	3.29	191	.76
Total	3.39	350	.80

4-11b Overall satisfaction with the college by Overall grade of HD obtained

		Overall grade of HD obtained	Overall satisfaction with the college
Overall grade of HD obtained	Pearson Correlation	1.000	.189***
	Sig. (2-tailed)	.000	.000
	N	350	350
Overall satisfaction with the college	Pearson Correlation	.189***	1.000
	Sig. (2-tailed)	.000	.000
	N	350	350

4-11c Correlation between Overall grade of HD obtained and Overall satisfaction with the college

*** Correlation is significant at the 0.001 level (2-tailed).

Appendix 4-12 Regression analysis results of factors affecting students' overall college satisfaction

Overall satisfaction with IVE (Tsing Yi)

Goodness-of-fit

Multiple R	0.56
R square	0.32
Adjusted R square	0.30
Standard error	0.64

$F=22.388$; Significance level= 0.000

Variables (Factors)

	Beta value	Significance
Relationship with staff and classmate (F5)	0.25	***
Teaching & learning materials (F2)	0.21	**
Languages support (F7)	0.21	**
College facilities (F6)	0.16	*
Qualities of teaching staff (F1)	0.10	*

Notes:

- * $p<0.05$; ** $p<0.01$; *** $p<0.001$
- N=350
- *Dependent variable*: respondents' degree of overall satisfaction with the college (used as a surrogate indicator of respondents' overall evaluation of the college)
- *Independent variables*: eight orthogonal factors representing the components of perceived quality of the college.

Appendix 4-13 Regression analysis results of factors (of attributes) affecting employers' overall satisfaction with IVE(Tsing Yi) graduates

Overall satisfaction with IVE (Tsing Yi) graduates

	Goodness-of-fit
Multiple R	0.50
R square	0.26
Adjusted R square	0.24
Standard error	0.46
$F=38.17$; Significance level= 0.000	

<i>Variables (Factors)</i>	Beta value	Significance
Technical knowledge and skills (Factor 3)	0.27	***
Academic Skills (Factor 2)	0.24	**
Personal Management Skills (Factor 1)	0.17	**

Notes:

- $*p<0.05$; $**p<0.01$; $***p<0.001$
- *Dependent variable*: respondents' overall satisfaction with the IVE(TY) graduates (used as a surrogate indicator of respondents' overall evaluation of the graduates)
- *Independent variables*: four factors representing the components of perceived quality of the graduates.