

**Impact assessment of Quality & Relevancy factors  
on  
Vocational Training Programs  
for  
Employability.  
[Special Reference: Vocational Training Authority of Sri Lanka (VTA)]**

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## **Declaration by the Researcher**

I certified that the report is my own independent work and does not incorporate the work of any other person without due acknowledgement. I also declare that, the report has not submitted in the pursuance of any other qualification or award.

Date : .....

Signature : .....

Name of Researcher :

Institute :

Designation :

## **Certification of the Supervisor**

I hereby certify that the research Impact assessment of Quality & Relevancy factors on Vocational Training Programs for employability was completed by Nadeeka Ambagahawatta under my supervision.

Date : .....

Name of the Supervisor: Dr. K. A Lalithadeera

Signature : .....

## Preface

Research is a "**Voyage of discovery in search for knowledge**" by systematic and scientific way of collecting - gathering, recording, arranging, analyzing and interpreting data enunciating the concerned problem in specified area formulating a hypothesis and "**in finding facts on unknown territory**" by a careful study, reaching certain conclusions either,

- \* In the form of solution towards the concerned problem.
- \* In certain generalization for theoretical formulation.

What makes people to undertake research?

The possible motives may be either one or more of the following,

- \* Desire to get a research degree along with its consequential benefits.
- \* Desire to face challenges to solve the unsolved problem.
- \* Desire to get "intellectual joy" of doing creative work.
- \* Render service to society.
- \* Due to the directive of government, organization.
- \* Due to curiosity about new things.
- \* Understand causal relationships.
- \* Social thinking and awakening.
- \* Desire to get respect.

Whatever the reason, at last it leads to find out the truth. Thereby research leads to gain new knowledge to the existing stock of knowledge making for its advancement. [C.R. KOTHARI]



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## ABSTRACT

Employment defines as one's regular trade or profession. The employments are capable of influencing directly countrymen as well as social & economical development of a country

Labourforce is a human resource. It is not exaggeration that human resource is the most significant resource when compared with other resources, as it makes decision in respect of all other resource, it has the ability of creativity and innovation that cannot be found in any other resource and also it has an ability of value addition.

Vocational education and training has played a central role in promoting the school-to-work transition of young people. Due to the importance of this change-over Vocational and Technical Training Ministry was established and has been functioning for quite some time. The policy making and training providing several entities are coming under purview of this Ministry. Despite these roles, the return to Vocational Education and Training (VET), it is important to explore whether this important segment is well addressed its objectives.

This paper aims to examine the effect **Quality** and **Relevance** of Vocational Training Programs towards the employability for the Sri Lankan economic outcomes, during a reason past giving special reference to the entity of **Vocational Training Authority of Sri Lankan (VTA)** considering individual returns on employability against Institutional-based and work-based training programs on VET system.

In this context, the strategy has been used by the researchers are **explanatory type research** done adopting **positivistic methodology** by **narrowing down the scope giving special emphasis and reference on Quality & relevance of courses for employability at Vocational Training Authority respectively** in the direction of the employability at the **“World of Work”** through a **deductive approach** by collecting **empirical data** in a cross sectional manner due to time horizon in two ways; Firstly, views and opinions of respondents using an instruments of “Questionnaires” & “Interviews” from the technique of stratified sampling method and Secondly, by reviewing of literature.

In this research 46 VT Programs and 96 VT sector & Industry Sector managers have been selected to see the effectiveness of VT Programs for employability in the World of work.

This study signifies factors that would contributes to “finesse to job” via VT Programs, which in tern mutually benefited by Vocational Training Sector as well as Industry sector ultimately to the development of the country and to the socio economic development of its people.

Recommendations have been made on findings towards the design & development of VT programs as well as the quality and relevancy of VT Programs for employability in the World of Work to provide guideline to the policy makers to whom the findings are appropriate.

The results of this study indicate that vocational track graduates are more likely to have literacy skill disadvantages, short-term employment advantages, and long-term employment disadvantages compared to general track graduates.

The most significant finding is that there are substantial differences between work-based and school-based VET systems with regard to their literacy and employment effects. Compared to VET graduates from general education-oriented countries, VET graduates from work-based VET-oriented countries are initially more likely to be employed, but that employment premium narrows faster over time. Therefore, a lifespan overview and the characteristics of national VET systems should enter into policy debates on national educational systems.

# **Chapter I**

## **Introduction and Over View**

### **1.1 Introduction**

Country's workforce is one of the important factors of its development irrespective of sector.

Workforce is a human resource. It is not exaggeration that human resource is the most significant resource out of all other resources such as Physical Resource, Finance Resource for a development of a country. Because all other resources make things possible while human resource makes things happen. Also human resource makes decision in respect of all other resources.

Moreover, it has the ability of creativity and innovation that cannot be found in any other resource while has an ability of value addition.

The industry impacts upon sustainable economic development by satisfying some of the basic objectives of developments with employment creation for the country's workforce fulfilling physical and social needs

Thereby, the need of a skilled manpower has been the challenge in every country's aspiration which has highly visible outputs and a major contributor to the GDP of the country and hence the need to engender confidence and competence among workforce to shoulder the accountability that comes with early responsibility.

Consequently, it is obvious that providing training and developing skills & knowledge through Vocational Training [VT] Programs to human resource will lead to give a positive impact on economic development of a country.

It becomes imperative that synergies of people and its leaders should be harnessed in devising a strategy of development. There is a major concern on both private and public sector on productivity and complain on workforce especially from public sector on lack of productivity "not doing right thing right, economically"

### **Vocational Training**

Vocational education is Instructional programs or courses that focus on the skills required for a particular job function or trade and prepare people to take up employment in a skilled craft or trade as a tradesperson or artisan/ craftsman. Vocational education is known by a variety of names, depending on the country concerned, including career and technical education, or acronyms such as TVET (Technical and Vocational Education Training) and TAFE (Technical And Further Education).

A vocational Training centers are the type of educational institution specifically designed to provide vocational education such as Technical Colleges, Vocational Colleges, institutes of technology (formerly called polytechnic institutes) and Vocational Universities.

Vocational education can take place at the post-secondary, further education, or higher education levels and interact with the apprenticeship system via On the Job Training [OJT] through Industry participation.

The primary objective of the Vocational Training is to provide knowledge, skills and ability to youth enabling them to take-up an employment and for the contribution to the Gross Domestic Product [GDP] of the country while directing them for their social well-being. On the other hand Vocational Training develops Human Potential in the human resource.

At the same time, as a pioneer training provider of the vocational training in the country the Vocational Training Authority of Sri Lanka (VTA) has been conducting course at almost most all its centers, but the participation rate of the younger generation is poor and also the indicated dropout rate in accordance to past record was around 40 percent.

### **Vocational Training Authority of Sri Lanka (VTA)**

VTA which was established under the vocational Training Authority act No. 12 of 1995 and is the pioneer public training institution that undertakes to conduct public-sector vocational training programs throughout the island by 117 centers in 2020. According to the 2020 training plan, VTA conducts more than 2000 programs in both first and second semesters. The Annual fulltime training target is 37,000 trainees for the year and at present VTA conducts 1,225 **National Vocational Qualification [NVQ]** and Non-NVQ courses in 19 trades.

Tertiary Vocational Education Commission (TVEC) is the APEX body for the deliverance of NVQ courses on National Vocational Qualification Framework [NVQF] with different levels and is vary from 1 to 7 levels. All the Vocational Training centers have to be registered with this organization and it conducts NVQ assessments and issue NVQ certificates.

VTA conducts NVQ level courses on Level 3 to 6 are conducted both full time and part time during weekdays and weekends. Only one instructor is being allocated for each NVQ Level four courses and more than one instructor is being allocated for level five courses.

In this endeavor, as a pioneer training provider of the vocational training in the country the **Vocational Training Authority [VTA] of Sri Lanka** has been conducting course at almost all its island wide training center network as a major vocational training provider in Sri Lanka.

Thereby, it is extremely worth-while to explore the root cause and effect on the gaps between;

- Industry demanded,
- Poor participation and high dropout rates of the courses although courses are not fee-levy.

## 1.2 Significance of the research

The Sri Lankan work force required skills that are essential for industry upgrading and diversification and able to find employments in the global market which is highly competitive. The numerous state-run skills development programs are essentially focused to demand oriented by providing industry relevant skills to be demand-driven in cooperation with the private sector who will be the eventual employers.

Quality and relevance are two different factors, but which are closely interrelated.

**How**, improving quality and relevance of vocation training programs and **what**, direct impact will be given, to **whom**, VT recipients, **why**? To make them competent for employability - is the area of research. Such competency increase efficiency and effectiveness within the economy for the performance at the employment. When perform duties or tasks at employments by competent people, the productivity get enhanced. The ultimate benefit would be the positive impact on an economic development of the country.

The result of this research would contribute to assessment of factors influencing quality and relevance of vocational training programs and it would affect to the employability of the recipients of vocational training, judging the degree of goodness or worth of said features. It is proposed that the vocational training would be adjusted using such factors appropriately to enhance the productivity towards the employability of recipients of vocational training programs. Finally to create high performance work practices in an organization assuring high work performance not only limiting to the organizations but also affects the whole country.

Factors influence quality and relevance, which is empirically proved, can be used to measure the Vocational Training programs for the employability.

Quality and relevance of vocational training programs, which in turns is mutually beneficial to both VT recipients and eventual employees.

The recipient receive a demand and training providing organization [VTA] receive a sizeable return which directly effect to the socio-economic development of the country against the investment incurred, while the employer will receive a competent employees, which are be considered as "**value for money**".

Doubt, often better than the over confidence, for it leads to inquiry, and inquiry leads to invention.

Hudson Maxim; Academy of Nation - CLIC Digital Collections - In context of which the significance can well be understood.

### 1.3 Research Question

When there are so many employment avenues prevail locally as well as internationally while state organizations encouraging & conducting non-fee levy courses and programs island wide; Why the low enrolment for Vocational Training Courses from the younger generation and poor job placement?

### 1.4 Research Problem

Problem for the research is the perceived gap between existing state and the desired state of Vocational based employments in Sri Lanka, whether there are so many employment avenues prevail locally as well as internationally while state organizations encouraging & conducting non-fee levy courses and programs island wide, yet poor enrolment from the younger generation.

Recipients easily lose interest and confidences of the system resulting low enrolment, heavy dropouts. Is that due to vocational training traditional or inflexible?

The **Diagram 01**, Illustration of the Problem Analysis shows the progress of performance of VTA during the recent past: from year 2017 to 2020. It indicates the problem area identified by the researcher at which the gap between the existing Effectiveness of outcome and the actual Effectiveness required to be achieved.

### 1.5 Objectives of the Research

#### General (Primary) Objective

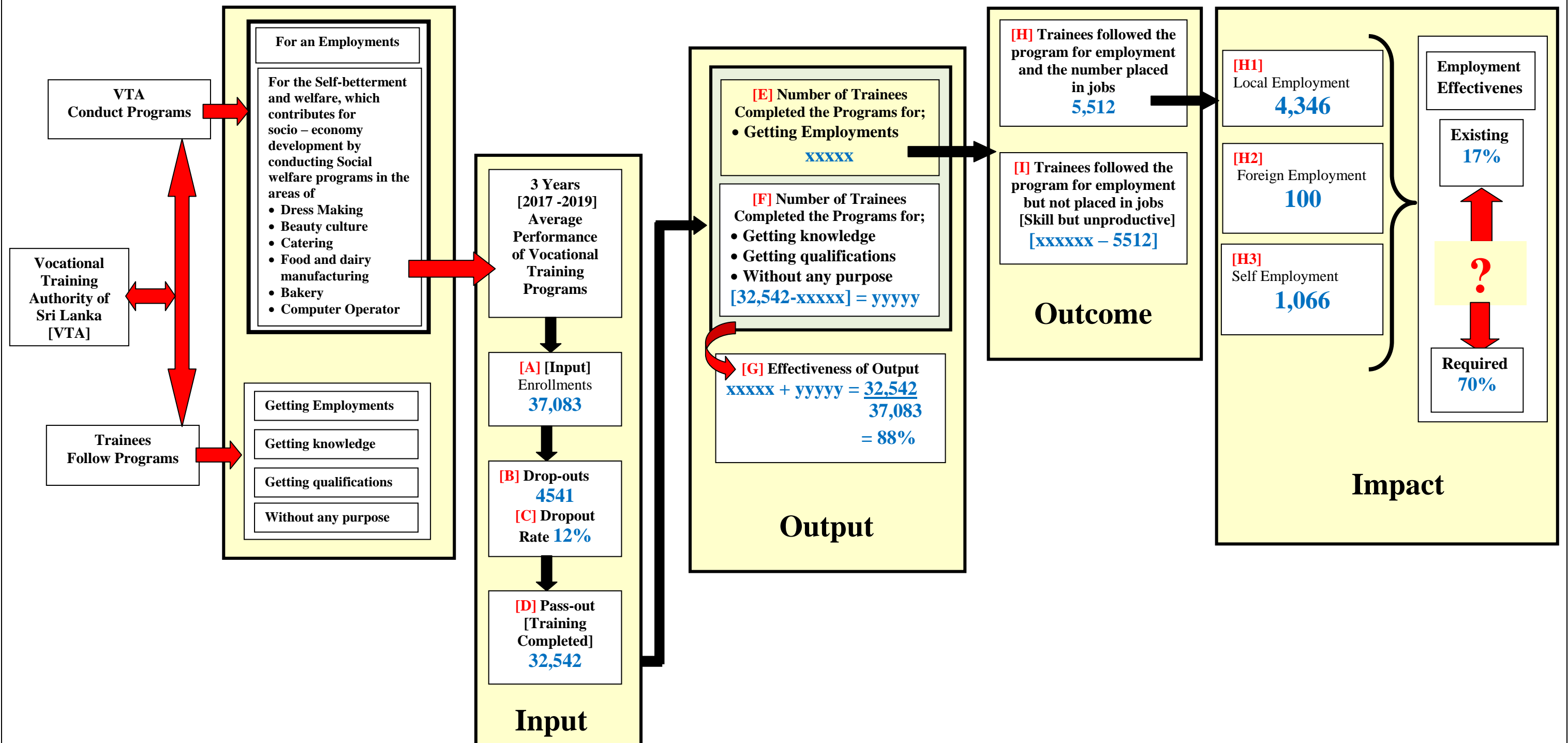
- 1.5.1 To determine the impact of “**Vocational Training [VT] programs**” on “**Employability**” to the “**World of Work**”.
- 1.5.2 To identify the impact of “**quality**” & “**relevance**” of “**Vocational Training [VT] Programs**” on **employments** in human capacity building to improve the efficiency of vocational training system with a flexible trained work force.

**Specific (Secondary) Objectives**, which would also to be achieved simultaneously.

- 1.5.3 To identify the relationship between quality and relevancy of vocational training programs and Employability “fitness to jobs” of such programs in the “**World of Work**”. By means of it, it is observed the shortcomings and mismatch of such programs provided by VTA what is demand by the industry and the service sectors.
- 1.5.4 To identify whether there are remedial measures in relation to fitness to Jobs.
- 1.5.5 To offer recommendation towards the quality and relevance of vocational training programs for high quality work practices at the organizational level and finally to provide a guideline to the policy makers to whom the findings are appropriate.

## Problem Analysis

Year	Enrolment	Pass out [completed]	Pass out [completed] Percentage	Drop-outs	Drop-outs Percentage	Job Placement [Employments]				Employment Percentage	Unemployed	Unemployed Percentage
	[Input]	[Output]							[Outcome]			
	A	B	C = [B/A]x100	D = [A-B]	E =[D/A]x100	F	G	H	I = [F+G+H]	J = [I/B]x100	K = [B-I]	L = [K/B]x100
						Local Employment	Foreign Employment	Self Employment	Total Employment			
<b>2017</b>	36,679	33,813	92%	2,866	8%	2,578	146	1,137	3,861	11.42%	29,952	88.58%
<b>2018</b>	36,585	33,164	91%	3,421	9%	6,547	107	1,374	8,028	24.21%	25,136	75.79%
<b>2019</b>	37,986	30,649	81%	7,337	19%	3,912	47	687	4,646	15.16%	26,003	84.84%
Total for 3 years	<b>111,250</b>	<b>97,626</b>	88%	<b>13,624</b>	12%	<b>13,037</b>	<b>300</b>	<b>3,198</b>	<b>16,535</b>	16.94%	<b>81,091</b>	<b>83.06%</b>
<b>Average of 3 Years</b>	<b>37,083</b>	<b>32,542</b>	<b>88%</b>	<b>4,541</b>	<b>12%</b>	<b>4,346</b>	<b>100</b>	<b>1,066</b>	<b>5,512</b>	<b>17%</b>	<b>27,030</b>	<b>83%</b>





## 1.6 Scope & Coverage.

**Scope** is Subject matter of the research [effect]. In other words scope is the **extent of matters being dealt with the studies**, that is the amount of work to be done within the boundary on a theoretical phenomenon to develop a conceptual framework. Thereby the scope is all the training centers and institutions [xxxxxxx] in every district right throughout the island was confined to a one large organization, which was the Vocational Training Authority of Sri Lanka.

**Coverage** is facts finding area.

Many factors came across by the researcher, which found to be influenced on Vocational Training recipients at the employment from many public and private sector organizations. Researcher had focused to cover two main actors of “quality” and “relevancy” with associated phenomena of “**Vocational Training [VT] programs**” with empirical evidences to examine

Theoretically quality and relevancy of “**Vocational Training [VT] programs**” for **employability** is situational and very complicated to define boundaries at which differ from industry to industry, segment to segment and culture to culture.

The effects of quality and relevancy are related, firstly with the internal environment subsequently external environment. Therefore researcher attempted to select the vocational training system in particular, to examine the effectiveness of “**Vocational Training [VT] programs**” through the perspective of employability in the “World of Work” and the impact to internal immediate environment of the Vocational Training Authority of Sri Lanka.

## 1.7 Limitations of the Research

Limitations are the potential weakness of the research, purely due to the structural errors of the design. Researcher restored a sample to determine the population’s views and opinions. This was due to,

1. Limited time duration.
2. Cheaper to observe a part [Sample] rather than the whole [Population] for the Economy
3. Population is very large by their nature and also due to inaccessibility to entire population [Beyond the coverage of Researcher] and hence, only selected number of youths from selected number of trainees and industry representatives were selected.[Recipients].

4. Generalization of the study related to impact of employments is a tedious process as relationship various and develops into several different variables and also the time requirement to collect data and analyzing the findings, the scope of the research is limiting to only on **Quality** and **Relevance** factors of vocational training programs towards Employment.
5. Furthermore limiting only to **Vocational Training [VT] Courses** in the Vocational Training Authority of Sri Lanka out of the Vocational Training system; as that limitation only to a one large organization consideration is that the Vocational Training Authority of Sri Lanka, is a large organization **[More than 250 employees - as per the Sri Lanka Standards Institution]** in the Vocational Training sector, where as the researcher wanted to pay more emphasized towards the solutions on the concerned problem more to that particular organization.

## 1.8 Hypotheses - [Null Hypothesis & Alternative Hypothesis]

- H1:** Greater the managerial involvement in the “**Designed & Development of Vocational Training [VT] Programs**”, Higher the “**Employability in the World of Work**”.
- H2:** Greater the “**Quality of training programs**”, Higher the “**Employability in the World of Work**”.
- H3:** Greater the “**Relevance of training programs**”, Higher the “**Employability in the World of Work**”.

## 1.9 Data Sources

### Primary Data

Primary data –Views and opinions have been collected from the respondents who were selected from the frame of,

### 1.0. Exogenously

- 1.1 Managers in the industry, where they provide employment opportunities to vocational training Authority recipients [trainees] those who followed VT programs

### 2.0. Indigenously

- 2.1. The Managers from the vocational training sector those who involved in Design & Development of VT programs. The primary data has been used
  - a] To test Hypothesis

- b]** To identify the factors influence “quality & relevancy of Vocational Training programs” upon “Employability” and the factors influence “Design and development of Vocational Training [VT] Programs” in relation to “Employability in the world of work”
- c]** To measure the industry norms for the Employability in the world of work on the quality& relevancy of vocational training programs.
- d]** To observe the most effective factors to employability in the world of work

## **Secondary Data**

Secondary data was gathered from

- Vocational Training Authority reports such as Annual Reports, Performance Analysis Reports, Key Information, Progress Reports, Researches & Tracer Studies carried out by the Research & Development Division.
- Tertiary & Vocational Education Council [TVEC] reports.
- Asian Development Bank [ADB] reports.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

The "**principle**" and "**concepts**" of quality initiative have proven very valuable to individuals, groups of people and organization. Many organizations have also discovered a relationship between quality, profitability and productivity.

In October 1887, William cooper Procter, grandson of the founder of "**Procter & Gamble**" [P&G], told his employees, "The first job we have is to turn out quality merchandise that consumers will buy and keep on buying. If we produce it efficiently and economically, we will earn a profit, in which you will share." Mr. Procter's statement addresses "**three issues**" that are critical to managers of manufacturing and service organizations: "**productivity**", "**cost**", and "**quality**". Productivity [the measure of efficiency defined as the amount of output achieved per unit of input] the cost of operations, and the quality of the goods and services that create customer satisfaction all contribute to profitability. Of these three determinants of profitability – "**productivity**", "**cost**", and "**quality**" – the most significant factor in determining the long - run success or failure of any organization is quality. Good quality of goods and services can provide an organization with a competitive edge. Good quality reduces costs due to returns, rework, and scrap. Good quality increases productivity, profits, and other measures of success. Most importantly, good quality generates satisfied customers, who reward the organization with continued patronage and favourable "word - of mouth" advertising. Quality has even become a focal point for industry - union cooperation. In working with Chrysler corporation to improve quality, a vice president of the United Auto Workers [UAW] succinctly stated the importance of quality. "**No quality, no sales. No sales, no profit. No profit, no jobs**" [Evans and Lindsay; 1999]

Quality has emerged as the managerial imperative of the decade. It is virtually impossible to open a professional journal without seeing some slogan such as

- Quality counts
- Right first time
- Total Quality Management [TQM]
- Zero defects
- Customer satisfaction

- Quality award or
- Commitment to quality
- Foremost in quality and excellence
- Perpetual betterment

Leaders could point to improved internal efficiencies resulting from their quality efforts and assign cost saving to those efficiencies. They could point to process improvements that resulted in quicker development cycles and faster delivery to increased customer satisfaction.

Quality appeared to be working. But, when business was down, the inevitable questions were asked: “why are we spending all this money on quality? Is our quality initiative paying off?” I believe that the reason why people ask these questions is that they do not view “**quality**” in its totality. Many organizations have made the mistake of taking each element of a total quality initiative, and trying to implement each one as a separate intervention. Whenever an organization looks at total quality as a series of techniques that can be independently introduced, the organization runs the risk of not viewing the organic interconnectedness of the elements of an organization. After all, each intervention that impacts one aspect of the enterprise has a bearing on many other as well. What is needed is a holistic approach to quality. Quality Management System [QMS] is a systematic approach to linking quality initiatives to each and every element of the organization and its culture. It is not just the implementation of an ISO 9000 Standard and Certification.

## **2.2 HISTORICAL EVOLUTION OF QUALITY MANAGEMENT**

In a broad sense, quality refers to any action directed toward providing consumers with products [goods and services] of appropriate quality. Quality usually associated with some form of measurement and inspection activity has been an important aspect of production operations throughout history. Egyptian around 1450 b.c. shows evidence of measurement of inspection. Stones for the pyramids were cut so precisely that even today it is impossible to put knife blade between the blocks. The Egyptians' success was due to the consistent use of well-developed methods and procedures and precise measuring devices.

### **2.2.1. Four stages of historical evolution of the Quality Movement.**

They can be categorized as follows.

- 1. Quality inspection**
- 2. Quality control**
- 3. Quality assurance**
- 4. Total Quality Management [TQM]**

Quality improvement concepts have developed over several decades.

The early 20<sup>th</sup> century

In the early 1900s the work of Frederick W. Taylor, often called the father of scientific Management, led to a new philosophy of production. Taylor's philosophy was to separate the **"planning function"** from the **"execution function"**. Managers and engineers were given the task of planning; supervisors and workers, the task of execution. This approach worked well at the turn of the century, when workers lacked the education needed for doing planning. By segmenting a job into specific work tasks and focusing on increasing efficiency, quality fell into the hands of inspectors. Defects were present but were removed by inspection. Plants employed hundreds, even thousands of inspectors. Inspection was thus the primary means of **"quality control"** during the first half of the twentieth century.

Eventually, production organizations created separate quality departments, this artificial separation of production workers from responsibility for quality concern led to indifference to quality among both workers and their managers. Concluding that quality was the responsibility of the quality department, many upper managers turned their attention to output quantity and efficiency. Because they had delegated so much responsibility for quality to others, upper managers gained little knowledge about quality and when the quality crisis hit, they were ill prepared to deal with it.

**1<sup>st</sup> Stage** – They began simply as a method for **sorting out defective products from good product by “inspection” at the end of the production line**. This first stage can be seen in the 1910s when the Ford Motor Company's “T” model car rolled off the production line. The process of **“inspection”** was that the poor quality product found by the inspectors would be separated from the acceptable quality product and then would be scrapped, reworked or sold as lower quality.

One of the leaders of the industrial revolution, Henry Ford, Sr. developed many of the fundamentals in the early 1900s.

This was highlighted when Ford executives visited Japan in 1982 to study Japanese management practices. As the story goes, one Japanese executive referred repeatedly to "the book", which the Ford people learned was a Japanese translation of *My life and work*, written by **Henry Ford and Samuel Crowther in 1926 [New York: Garden City Publishing Co.]** "The book" had become Japan's industrial bible and Ford Motor Company had strayed from its

principles over the years. The Ford executives had to go to a used bookstore to find a copy when they returned to the United States.

The Bell System was the leader in the early modern history of industrial quality. It created an inspection department in its Western Electric Company in the early 1900s to support the Bell operating companies. Although the Bell System achieved its noteworthy quality through massive inspection efforts,

The importance of quality in providing telephone service across the nation led it to research and develop new approaches. In the 1920s employees of "Western Electrics" inspection department were transferred to Bell Telephone Laboratories. The duties of this group included the development of new theories and methods of inspection for improving and maintaining quality. The early pioneers of quality concern- Walter Shewhart, Harold Dodge, George Edwards and others including W. Edwards Deming - were members of this group. These pioneers developed many useful techniques for improving quality and solving quality problems. Thus quality became a technical discipline of its own.

**2<sup>nd</sup> Stage** - Before the Second World War, pioneer work by a number of statisticians led to the development of techniques for improving the **“control”** of production processes so that the number of defective products would be reduced. **This change is emphasis, from inspection to prevention**, was quite revolutionary. At this second stage quality was controlled through supervised skills, written specifications, measurements and standardization

The Western Electric group, led by Walter Shewhart, ushered in the era of **statistical quality control [SQC]**. SQC is the application of statistical methods for controlling quality. SQC goes beyond inspection; it is focused on identifying and eliminating the problems that cause defects. Shewhart is credited with developing control charts, which became a popular means of identifying quality problems in production processes and ensuring consistency of output. Others in the group developed many other useful statistical techniques and approaches.

During the Second World War, manufacturing systems became complex and quality began to be verified by statistical quality control charts and acceptance sampling methods developed by Shewart and Dodge-Romig during the period 1924-1931. At this stage, **“Shewart”** introduced the idea that quality control can help to distinguish and separate two types of process variation, firstly the variation resulting from **“random causes”** and secondly the variation resulting from **“assignable causes”**. He also suggested that a process could be made to function predictably by separating the variation due to **“assignable causes”**.

Furthermore, he designed a control chart for monitoring such process variation in order to decide when to interact with the process.

**During World War II** the U.S. military began using statistical sampling procedures and imposing stringent standards on suppliers. The War Production Board offered free training courses in statistical methods that had been developed within the Bell System. The impact on wartime production was minimal, but the effort developed quality specialists, who began to use and extend these tools within their organization. Thus, statistical quality control became widely known and gradually adopted throughout manufacturing industries. Sampling tables labelled *MIL-STD* for *military standard*, were developed and are still widely used today. The discipline's first professional journal *Industrial Quality Control* was first published in 1944 and professional societies - notably the American Society for Quality Control [now called the American Society for Quality] were founded soon after.

### **Post - World War II**

After the war, during the late 1940s and early 1950s the shortage of civilian goods in the United States made production a top priority. In most companies, quality remained the province of the specialist. Quality was not a priority of top managers, who delegated this responsibility to quality managers. Top management showed little interest in quality improvement or the prevention of defects and errors, relying instead on mass inspection.

During this time, two U.S. consultants, Dr. Joseph Juran and Dr. W. Edwards Deming, introduced **statistical quality control techniques** to the Japanese to aid them in their rebuilding efforts. A significant part of their educational activity was focused on upper management rather than quality specialists alone. With the support of top managers, the Japanese integrated quality throughout their organizations and developed a culture of continuous improvement [Sometimes referred to by the Japanese term *Kaizen*, pronounce *Ki-zen*]. Backing in 1951, the

Union of Japanese scientist and engineers [JUSE] instituted the Deming Prize to reward individuals and companies who meet stringent criteria for quality management practice.

Improvement in Japanese quality was slow and steady; some 20 years passed before the quality of Japanese products exceeded that of Western manufacturers. By the 1970s, primarily due to the higher quality levels of their products, Japanese companies had made significant penetration into Western markets.



One of the more startling facts was reported in 1980 by Hewlett-Packard. In testing 300,000 16k RAM chips from three U.S. and three Japanese manufacturers, Hewlett - Packard found that the Japanese chips had an incoming failure rate of Zero failures per 1,000 compared to rates of 11 and 19 for the U.S. chips. After 1,000 hours of use the failure rate of the U.S. chips was up to 27 times higher. In a few short years, the Japanese had penetrated a major market that had been dominated by American companies.

The automobile industry is another more publicized, example. The June 8, 1987 *Business Week* special report on quality noted that the number of problems reported per 100, 1987 domestic models in the first 60 to 90 days of ownership averaged between 162 and 180. Comparable figures for Japanese and German automobiles were 129 and 152 respectively. The U.S. steel, consumer electronics, and even banking industries also were victims of global competition.

The **3<sup>rd</sup> stage** – of this development, i.e. "**quality assurance**", which contains all the elements of the previous stages "**inspection**" and "**control**" in order to provide sufficient confidence that a product or service will satisfy customer's needs. Other activities such as "**comprehensive quality manuals**", "**use of cost of quality**", "**development of process control**" and "**auditing of quality systems**" were also developed in order to progress from 'quality control' to the 'quality assurance' era of the quality movement.

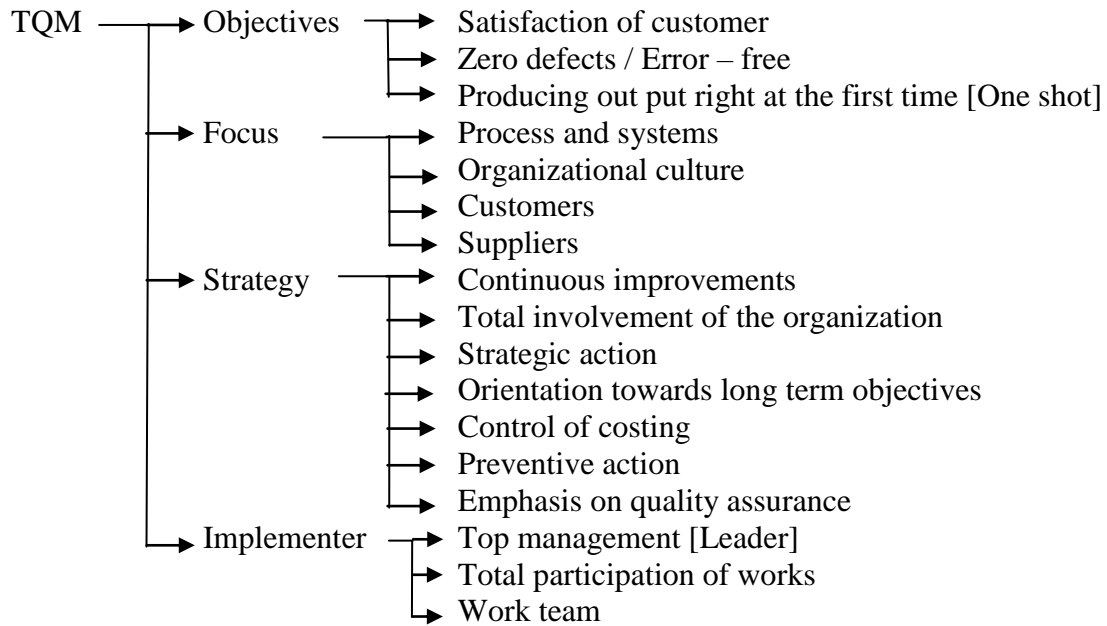
At this stage there was also an emphasis of **change from detection activities towards prevention of bad qualities.**

The **4<sup>th</sup> stage** - i.e. "**Total Quality Management- [TQM]**" involves the understanding and implementation of quality management principles and concepts in every aspect of an Organization's activities and operations. TQM demands that the principles of quality management must be applied at every level, every stage and in every department of the organization .It will be reflected such as

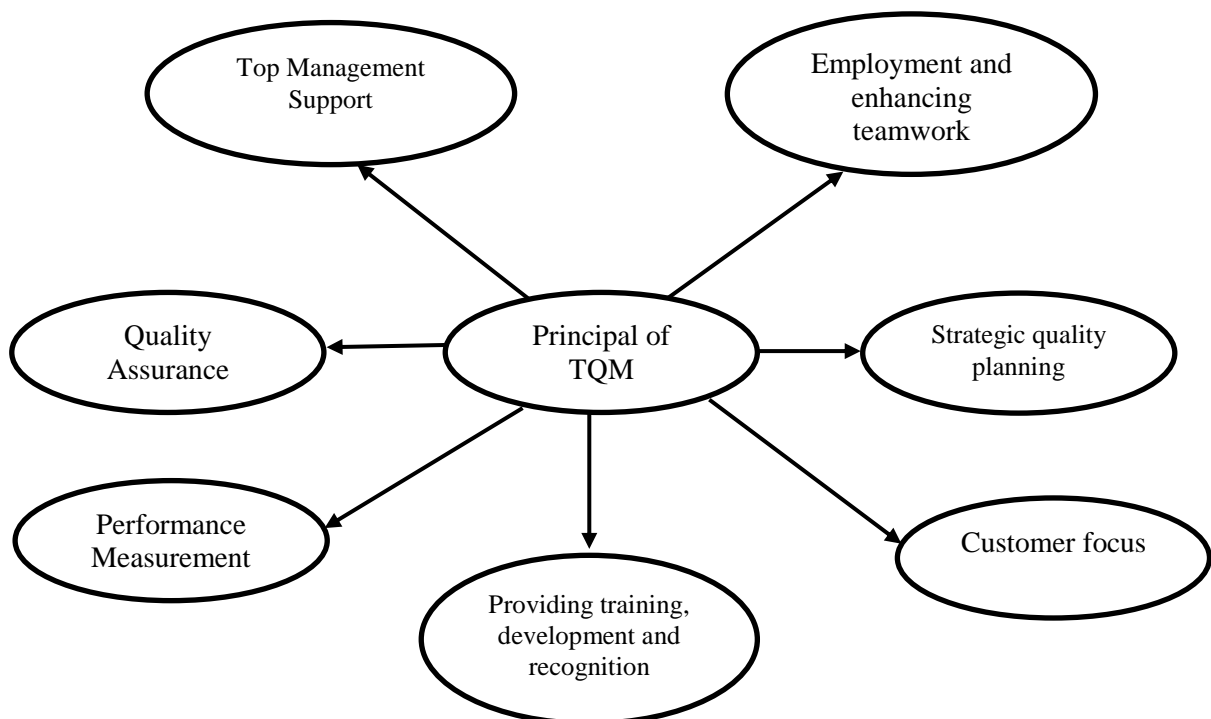
- Effectiveness of management
- Ability of employers
- Efficiency of operational systems

The development of total quality management movement from 1948 onwards can be credited to the works of various American experts. Among them **Dr. Edward Deming, Dr. Joseph Juran and Philip B. Crosby** have contributed significantly towards continues development of the subject.

## 2.3. FEATUERS OF TQM



## 2.4. PRINCIPAL OF TQM



## 2.5. HINDERANCES IN THE WAY OF TQM

1. Lack of Management commitment.
2. Inability to change the organization culture.
3. Improper planning.
4. Lack of continuous training and Development.
5. Incomplete organization structure and isolated individuals and departments.
6. Ineffective Management techniques.
7. Lack of access to data and results.
8. Inadequate attention to internal / external customers.
9. Inadequate empowerment and teamwork

### *The U.S "Quality Revolution"*

*The decade of the 1980s was a period of remarkable change and growing awareness of quality by consumers, industry and government. During the 1950s and 1960s when "made in Japan" was associated with inferior products, U.S. Consumers purchased domestic goods and accepted their quality without question. During the 1970s however, increased global competition and the appearance of higher-quality foreign products on the market led U.S. consumers to consider their purchasing decisions more carefully. They began to notice differences in quality between Japanese and U.S. made products and they began to expect and demand high quality and reliability in goods and services at a fair price. Consumers expected products to function properly and not to break or fail under reasonable use, and courts of law supported them. Extensive product recalls mandated by the "consumer product safety commission" in the early 1980s and the intensive media coverage of the Challenger-space shuttle disaster in 1986 increased awareness of the importance of quality. Consequently, consumers are more apt than ever before to compare evaluate and choose products critically for total value-quality, price and serviceability. Magazines such as consumer reports and newspaper reviews make this task much easier.*

*Obviously, the more technologically complex a product the more likely that something will go wrong with it. Government safety regulations, product recalls, and the rapid increase in product-liability judgments have changed society's attitude from "let the buyer beware" to "let the producer beware" business have seen that increased attentiveness to quality is vital to their survival. Xerox discovered that its Japanese competitors were selling small copiers for what it cost Xerox to make them. A Westinghouse [now CBS] vice president of corporate productivity and quality summed up the situation by quoting Dr. Samuel Johnson's remark: "Nothing concentrates a man's mind so wonderfully as the prospect of being hanged in the morning". Quality excellence became recognized as a key to worldwide competitiveness and was heavily promoted throughout industry. Most major U.S. companies instituted extensive quality improvement campaigns focused not only on improving internal operations, but also on satisfying external customers.*

*One of the most influential individuals in the quality revolution was W. Edwards Deming. In 1980 NBC televised a special programme entitled "If Japan can .... Why cant we?" The widely viewed programme revealed Deming's key role in the development of Japanese quality, and his name was soon a household word among corporate executives.*

*Although Deming had helped to transform Japanese industry three decades earlier it was only then that U.S companies asked for his help. From 1980 until his death in 1993 his leadership and expertise helped many U.S. companies such as Ford Motor Company, General Motors and Procter & Gamble - to revolutionize their approach to quality.*

*As business and industry began to focus on quality, the government recognized that quality is critical to the nation's economic health. In 1984 the U.S. government designated October as National Quality Month. In 1985 NASA announced an Excellence award for Quality and productivity. In 1987 the Malcolm Baldrige National Quality Award a statement of national intent to provide quality leadership was established by an act of congress. The Baldrige Award has become the most influential instrument for creating quality awareness among U.S. businesses. In 1988 president Reagan established the Federal quality prototype award and the president's award for governmental agencies. New quality awards have been established by the federal government in the 1990s under the Clinton administration. Many states have also developed award programmes for recognizing quality achievements in business, education and government.*

*From the late 1980s and through the 1990s interest in quality grew at an unprecedented rate, fuelled in part by publicity from the Malcolm Baldrige National Quality Award. Companies made significant strides in improving quality. In the automobile industry for example, improvement efforts by Chrysler, General Motors and Ford reduced the number of problems reported per 100 domestic cars in the first 60 to 90 days of ownership from about 170 in 1987 to 136 in 1991. Nevertheless, Japanese manufacturers had reduced their average from 129 to 105 during that period and held seven of the top ten spots in the J.D. Power and Associates survey. The gaps continue to narrow, however and U.S. firms have now regained much of their global competitiveness.*

*By 1989 Florida Power and Light was the first non-Japanese company to be awarded Japan's coveted Deming Prize for quality; AT& T Power systems was the second in 1994. By the mid 1990s thousands of professional books had been written, and quality - related consulting and training had blossomed in to an industry. Companies began to share their knowledge and experience. Each October, industry leaders celebrate National Quality month with a nationwide satellite telecast.*

*Today quality management and control is recognized as the foundation of business competitiveness and is proactively integrated with all business practices. Executives at Xerox designed a programme called "Crisis of Opportunity", to help the company to discover and act on opportunities to improve quality when things are going well, rather than waiting for a crisis to occur.*

**James R Evans, William M. Lindsay**

**The management of control of quality, 4th edition – 1999 [P. 8 & 9]**

The quality movement has resulted in many successes, but also in many failures. When a quality initiative fails, it is generally because of poor management, not the soundness of the principles. In 1948, after World War II when **Dr. Edward Deming** went to Japan, the definition of quality was what we called - “**fitness –to –standard**”. That is, you have to produce the product to meet a standard still a very important definition, but in time, it becomes inadequate. Fitness –to – standard asks that each worker be responsible for the quality of his or her own output.

## **2.6. Dr. Edward Deming’s FOURTEEN POINTS OF QUALITY TRANSFORMATION.**

Deming advocates a quality transformation through the application of the following fourteen points. Note that Deming makes important observations about supervision and management in points seven through twelve.

1. Create a constancy of purpose for improvement of products and services. This involves a long –run focus and dedication to innovation.
2. Adopt a new philosophy: poor quality is unacceptable.
3. Cease dependence on mass inspection. Don’t plan for defects, improve processes and prevent defects.
4. End the practice of awarding business on price tag alone. Move toward trusted suppliers on a long –term basis. Change traditional purchasing practices. [Select a few suppliers based on quality]
5. Constantly and forever improve the system of production and service, study the process, and cut out waste. Improve quality and productivity, thereby decreasing costs.
6. Institute modern methods of training on the job .use statistical methods to establish needs and verify successes. Focus on clearly defined concepts of acceptable work. [Worker training]
7. Institute modern methods of supervising. Remove managerial style and practice barriers that keep hourly workers from doing their work with pride. Empower supervisors to inform management of correction action must follow.
8. Drive out fear. People must be able to ask questions, report problem, and express ideas. [Eliminate fear among employees]
9. Break down barriers between department .The organization must work as a team Multidisciplinary quality teams can provide valuable improvements.
10. Eliminate numerical goals for the work force. Eliminate targets slogans, and exhortations asking for increased performance levels from workers. The organization however must have a direct goal focus.

11. Eliminate work standards and numerical quotas. Quotas adversely impact quality. Work standard practically guarantee poor quality and high costs; they are rarely exceeded.
12. Remove barriers that hinder hourly workers. People must know what good work is supervisors must be responsive to frustrations about materials and equipment. [Enhance workers pride]
13. Institute a vigorous program of education and training. Training must be continuous because improvements after staffing all training must include basic statistical techniques.
14. Create a structure in top management that will “*push*” every day on the above thirteen points.

## **2.7 Deming’s SEVEN “DISEASES” IN THE WAY OF QUALITY TRANSFORMATION.**

Here are the seven “diseases” that Deming sees as standing in the way of a quality transformation.

1. Lack of constancy of purpose.
2. Emphasis on short-term profits (counter to constancy of purpose)
3. Personal review system (management by objective performance, evaluation, merit rating)
4. Mobility of management; job hopping
5. Use of only visible figures for management, with little or no consideration of figures that are unknown or unknowable (e.g. leadership, optimisation of people works training works.)
6. Excessive medical costs
7. Excessive costs of warranty fuelled by attorney fees.

## **2.8 QUALITY AS Fitness-for-use**

**Juran** offers the following three –part system focusing on “**fitness-for-use**”.

### **2.8.1 Breakthrough projects**

- Accomplish a breakthrough in attitude. Prove the need focusing on cost of quality; establish the return on investment; create a climate for change.
- Identify the few vital projects. Perform a Pareto analysis; establish priorities based on frequency.
- Organize for breakthrough in knowledge. Incorporate a steering group for direction and authority and a diagnostic group for quality professional and line manager analysis.

- Conduct the analysis, have the diagnostic groups develop hypotheses and experiment to find true causes, distinguishing those that are operator and/or management –controllable; propose solutions to the problem.
- Determine how to overcome resistance to change. Need must be established for key people; logic alone will not work; participation is essential.
- Institute change. Convince departments to cooperate with size problem, alternatives, costs, expected benefits, and anticipated impact on employees, consider time for reflection, provide for training.
- Institute controls, Monitor solutions, and correct sporadic problems.

### **2.8.2. Control sequence [Comprehensive, from vendor relations to Customer Service]**

- Optimise the cost of quality.
- Establish needed professional staff entity. Employ quality control engineers.
- Establish the feedback loop. Establish an objective; define a unit of measure; set a numerical standard or goal; create a means of measuring sophisticated statistical applications; mobilize the organization to report.
- Repeat the action cycle. Use actual as compared to standard; take action to close the gap.

### **2.8.3. Annual quality objectives.**

- Establish quality objectives. Focus on items such as financial planning and the annual budget.
- Maintain the initiative.

## **2.9. QUALITY AS Zero Defects**

Crosby describe quality as conformance to requirement and in the very long run, free, with the goal of “**Zero defects**”. He believes that there are five phases in moving towards a quality system.

Crosby’s five phases of quality system

- Uncertainty. Quantity is not recognized as a management tool.
- Awakening. Quality is important, but action is put off.
- Enlightenment. Quality problems are openly faced and addressed through a formal program.

- Wisdom. Prevention is working well; early identification and correction are routine.
- Certainty. Quality management is an essential part of organization; problems are infrequent.

Crosby also proposes a 14 points program for “Quality Improvement”. He expects such a program to be supported with management training and provision of operator training materials.

## **2.10. QUALITY IMPROVEMENTS**

Crosby’s Fourteen Points for Quality Improvements

1. Management commitment. This cascades from the top management down; there is a written policy.
2. Quality improvement team. Department’s heads oversee needed action at the company and department levels.
3. Quality measurement. Appropriate measures are established for every activity identifies needed improvements. Cost of quality evaluation. It’s important to identify where improvements are most profitable.
4. Quality awareness. Raise employee consciousness, message must be carried by trained supervisors and various media, such as films, videos, booklets, and posters.
5. Correction action. Opportunities for this area suggested by above activities and employee discussions, problems should be resolved at supervisory levels or moved upward to management.
6. Zero-defects planning. This must be relevant for the company its culture, and handled by ad hoc committee of quality improvement team.
7. Supervisor training. All management levels must be trained to implement their part of the quality program.
8. Zero defects day. This signals employees that the company has a new performance standard.
9. Goal setting. Turn commitments into action; establish specific and measurable goals for individuals and groups; post goals and hold meeting to discuss them.
10. Errors cause removal. Communicate upwards on problems and frustrations; management should acknowledge within 24 hours.
11. Recognition. There must be public, non-financial appreciation for those who meet goals and perform in an outstanding manner.



12. Quality councils. This is where quality professional and intradepartmental team chairpersons meet regularly to share.
13. Doing it all over again. Quality achievement is a never-ending process; renew commitments; bring new employees on board.

**In essence**, the core concepts of QUALITY MANAGEMENT and ASSURANCE are;

- Continuous Process Improvement
- Customer Focus
- Defect Prevention
- Universal Responsibility

## **2.11. SOME DEFINITIONS OF QUALITY**

Quality can be a confusing concept, partly because people view quality in relation to differing criteria based on their individual roles in the production- marketing chain. In addition, the meaning of quality has evolved as the quality profession has grown and matured. Neither consultants nor business professionals agree on a universal definition.

A study that asked managers of 86 firms in the eastern United States to define quality produced several dozen different responses, including

- Perfection
- Consistency
- Eliminating waste
- Speed of delivery
- Compliance with policies and procedures
- Providing a good, usable product
- Doing it right the first time
- Delighting or pleasing customers
- Total customer service and satisfaction.

Quality is sometimes expressed as a “**relative concept**” and can be different things to different people. For example a Mercedes Benz car is a quality car for certain customers whereas Toyota corolla can be a quality car for other customer.

Sometimes people visualize quality in absolute terms and for them it can be compared with beauty and sweetness According to them it can be compared with certain absolute characteristics and the product or services must achieve a pre-set [pre determined] standard in order to obtain a quality rating.

- The American National Standards Institute [ANSI] and the American Society of Quality control [ASQC] define quality as: **“the totality of features and characteristics of a “product” or “service” that bears on its ability to satisfy given needs.”**

**Note: -Services are intangible, can not be measured, counted, inventoried, tested or verified, in advance of delivery, to ensure quality.**

- As per the Webster dictionary; **quality is excellence of a thing.**

- **As per Sri Lanka Standards Institution [SLSL]**

**The National Standards body and the member body of ISO in Sri Lanka].**

**Quality is defined as;**

- Quality is customer satisfaction/ delight
- Quality means conformance to specified requirements
- Quality means fitness for use
- Quality means value for money
- Quality means Zero defects.
- Quality means guarantee of confidence.
- Quality means efficiency and productivity.
- Quality is an investment for profitability.
- Quality means on time delivery.
- Quality is a collective attitude of mind.
- Quality is a thought revolution in management.
- Quality is systematic approach to excellence.
- Quality is the ultimate expression of craftsmanship.
- Quality is never ending cycle of improvements.
- Quality means pride of ownership.
- Quality means consistently producing conforming products.
- Quality means credibility.

**- Quality is all of the above -**

In a highly competitive markets, however, merely satisfying customer needs will not achieve success and excellence. To beat the competition, organizations often must exceed customer expectations by providing products and/or services that **delight** and **excite customers**. They have to satisfy the latent needs and expectations of the customers [both internal and external].

**Note: -**

Needs are basic human requirements which motivate an individual to do something.

**Basic Needs are;**

- Adequate food
- Water / Air
- Clothing
- Shelter
- Sex [Latent Need]
- Education
- Health care - recreation
- Sanitation
- Public utilities - entertainment

So, wants are, the way fulfil the needs. Desires of satisfier's deeper needs.

Ex-American needs food but wants Hamburger [**Philip Kotler**]

## **2.12. THREE SOURCE OF QUALITY**

1. Hardware        - Structure and equipment
2. Software        - Procedures [Circulars, A/R, FR] and process [Low and order, Code of practice]
3. Human ware    - Personnel [All recourses being controlled by human ware]

Thus it is important to understand the various perspectives from which quality is viewed in order to fully appreciate the role it plays in the many parts of a business organization.

## **2.13. THE VARIOUS PERSPECTIVES OF QUALITY**

### **2.13.1. Judgmental Criteria**

One common notion of quality, often used by consumers, is that it is synonymous with superiority or excellence. In 1931 Walter Shewhart first defined quality as the goodness of a product. This view is referred to as the *transcendent definition of quality* ["*transcend-* to rise above or extend notably beyond ordinary limits"]. In this sense, quality is "both absolute and universally recognizable, a mark of uncompromising standards and high achievement". As such, it cannot be defined precisely- **you just know it when you see it**. It is often loosely related to a comparison of features and characteristics of products and promulgated by marketing efforts aimed at developing quality as an image variable in the

minds of consumers. Common examples of products attributed with this image are Rolex watches and Mercedes - Benz and Cadillac automobiles.

Excellence is abstract and subjective, however and standards of excellence may vary considerably among individuals. Hence the transcendent definition is of little practical value to managers. **It does not provide a means by which quality can be measure or assessed as a basis for decision-making.**

### **2.13.2. Product based criteria**

Another definition of quality is that it is a function of specific, measurable variable and that differences in quality reflect differences in quantity of some product attribute such as in the number of stitches per inch on a shirt or in the number of cylinders in an engine. This implies that "**higher levels or amounts of product characteristics are equivalent to higher quality**". As a result, quality is often mistakenly assumed to be related to price: the higher the price, the higher the quality. However, a product-a term used here to refer to either a manufactured good or a service - need not be expensive to e considered a quality product by consumers. Also as with the notion of excellence, the assessment of product attributes may vary considerably among individuals.

### **2.13.3. User - Based Criteria**

A third definition of quality is based on the presumption that quality is determined by what a customer want. Individuals have different wants and needs and, hence different quality standards.

This leads to a user - based definition: quality is defined as *fitness for intended use* or how well the product performs its intended function. Both a Cadillac and a Jeep Cherokee are fit for use, for example but they serve different needs and different groups of customer. If you want a highway-touring vehicle with luxury amenities, then a Cadillac may better satisfy your needs. If you wand a vehicle for camping, fishing, or skiing trips a Jeep might provide higher quality.

Nissan's experience provides an example of applying the **fitness-for use** concept. Nissan tested the U.S. market for Datsun in 1960. Although the car was economical to own, U.S. drivers found it to be slow, hard to drive, low powered and not very comfortable. In essence, it lacked most of the qualities that North American drivers expected. The U.S. representative, Mr. Katayama, kept asking questions and sending the answer back to TOKYO. For some time, his company refers to believe that U.S. tastes were different from its own. After many years of nagging, Mr. Katayama finally got a product that

Americans liked, the 240z. Eventually, the name *Datsun* was changed to *Nissan* in an attempt to remove the old quality image.

A second example is that of a U.S. appliance company whose ranges of refrigerators were admired by Japanese buyers. Unfortunately, the smaller living quarters of the typical Japanese home do not have enough space to accommodate the U.S. models. Some could not even pass through the narrow doors of Japanese kitchens. Although the products' performance characteristics were high, the products were simply not fit for use in Japan.

#### **2.13.4. Value- Based Criteria**

A fourth approach to defining "**quality is based on value**": that is, the relationship of usefulness or satisfaction to price. From this perspective, a quality product is one that is as useful as competing products and is sold at a lower price or one that offers greater usefulness or satisfaction at a comparable price. Thus one might purchase a generic product, rather than a brand - name one, if it performs as well as the brand name product at a lower price.

Competing on the basis of value became a key business strategy in the early 1990s. Proctor & Gamble, for example, instituted a concept it calls value pricing offering products at "everyday" low price in an attempt to counter the common consumer practice of buying whatever brand happiness to be on special. In this way, P&G hoped to attend consumer brand loyalty and more consistent sales, which would provide significant advantages for its manufacturing system. Competition demands that businesses seek to satisfy consumers' needs at lower prices.

The value approach to quality incorporates a firm's goal of balancing product characteristics [the customer side of quality] with internal efficiencies [the operations side].

#### **2.13.5. Manufacturing - Based Criteria**

A fifth definition of quality is a manufacturing - based definition. That is, quality is defined as the desirable outcome of engineering and manufacturing practice, or "**conformance to specifications**". Specifications are targets and tolerances determined by designers of products and services. Targets are the ideal values for which production is to strive tolerances are specified because designers recognize that it is impossible to meet targets all of the time in manufacturing. For example, a part dimension might be specified as "0.236C!0.003cm". This would mean that the target or ideal value is 0.236 centimetres, and that the allowable variation is 0.003 centimetres. Thus any dimension in the range

0.233 to 0.239 centimetres is deemed acceptable and is said to conform to specifications. Likewise, in services, "on - time arrival" for an airplane might be specified as within 15 minutes of the scheduled arrival time. The target is the scheduled time, and the tolerance is specified to be 15 minutes.

For the Coca-Cola company for example, quality is "about manufacturing a product that people can depend on every time they reach for it", according to Donald R. Keought, former president and chief operations officer. Through rigorous quality and packaging standards, the company ensures that its products will taste the same anywhere in the world a consumer might buy them. **"Conformance to specifications is a key definition of quality", since it provides a means of measuring quality.** Specifications are meaningless, however if they do not reflect attributes that are deemed important to the consumer.

## **2.14. INTEGRATING PERSPECTIVES ON QUALITY**

**The diversity of definitions of quality can be explained by examining the eight principal quality dimensions defined by David A. Garvin.**

### **1. Performance**

A products primary operating characteristics. Using an automobile as an example, these would include such things as acceleration, braking distance steering and handling.

### **2. Features**

The "bells and whistles" of a product. A car may have power options a tape or CD deck, antilock brakes and reclining seats.

### **3. Reliability**

The probability of a product's surviving over a specified period of time under stated conditions of use. A car's ability to start on cold days and frequency of failures are reliability factors.

### **4. Conformance**

The Degree to which physical and performance characteristics of a product match pre-established standards. A car's fit and finish and freedom from noises and squeaks can reflect this.

## **5. Durability**

The amount of use one gets from a product before it physically deteriorates or until replacement is preferable. For a car this might include corrosion resistance and the long wear of upholstery fabric.

## **6. Serviceability**

The speed, courtesy and competence of repair work. An automobile owner might be concerned with access to spare parts, the number of miles between major maintenance services, and the expense of service.

## **7. Aesthetic**

How a product looks, feel, sounds, tastes or smells. A car's color, instrument panel design, control placement, and **"feel of the road"**, for example, may make it aesthetically pleasing.

## **8. Perceived quality**

Subjective assessment of quality resulting from image, advertising, or brand names. For a car, this might be shaped by magazine reviews and manufacturers' brochures.

Each of the definitions of quality examined in this section focuses on different quality dimensions, and none fully captures all of them. It is therefore not surprising that here conflicts exist among the definitions. [Note that the definitions and dimensions of quality discussed appear to relate primarily to manufactured goods. Unique dimensions of service quality are examined later]

Although product quality should be important to all individuals throughout a production - distribution system, how quality is viewed may depend on one's position in the system: that is, whether one is the designer, manufacturer, distributor, or customer. The customer is the driving force for the production of goods and services, and customers generally view quality from either the transcendent or the product- based perspective.

The goods and services produced should meet customers' needs; indeed, business organizations' existences depend upon this. It is the role of the marketing function to determine these needs. A product that meets customer needs can rightly be described as a quality product. Hence, the user-based definition of quality is meaningful to people who work in marketing.

The manufacturer must translate customer requirements into detailed product and process specification. Making this translation is the role of research and development, product design, and engineering. Product specifications might address such attributes as "**size**", "**form**", "**finish**", "**taste**", "**dimensions**", "**tolerances**", "**materials**", "**operational characteristics**", and "**safety features**".

Process specifications indicate the types of equipment tools, and facilities to be used in production. Product designers must balance performance and cost to meet marketing objectives; thus, the "**value-based definition**" of quality is most useful at this stage.

A lot of variation can occur during manufacturing operations. Machine settings can fall out of adjustment; operators and assemblers can make mistakes; materials can be defective. Even in the most closely controlled process, specific variations in product output are inevitable and unpredictable. The manufacturing function is responsible for guaranteeing that design specifications are adhered to during production and that the final product performs as intended. Thus for production personnel, quality is described by the manufacturing - based definition. Conformance to product specifications is their goal.

The production - distribution cycle is completed when the product has been moved from the manufacturing plant, perhaps through wholesale and retail outlets, to the customer.

Distribution does not end the customer's relationship with the manufacturer, however. The customer may need various services such as installation user information, and special training. Such services are part of the product and cannot be ignored in quality management.

The need for different views of what constitutes quality at different points inside and outside an organization is now clear. All of these perspectives are necessary and must be embodied in an overall company philosophy in order to result in product of true quality that will satisfy customers' needs.

Hospital care offers a good illustration of how different views of quality can affect a single product.

The transcendent definition of quality applies to the hospital's need to promote and maintain an image of excellence by ensuring the competency of its medical staff, the availability of treatments for rare or complicated disorders, or the presence of advanced medical technology. Subjective judgments of this kind of quality are made by patients and third-party organizations. Those who audit hospital efficiency and monitor treatment consistency and resource consumption define quality according to product-based



dimensions. This view of quality is predominant among government and healthcare accrediting agencies.

Patients' perceptions of healthcare quality are focused on product-based and user-based criteria, and their expectations are high because of widely publicized improvements in medical care, advances in therapeutic drug treatments, and innovative surgery. This has increased the pressure on hospitals to provide a variety of services to meet these expectations. As demand for flawless service increases, the medical staff and ancillary services must turn their attention to a manufacturing based definition of quality. This is the view of accrediting agencies and the medical profession, which mandate conformance to various practices and determine licensing requirement for practice.

## **9. Customer-Driven quality**

Official definitions of quality terminology were standardized in 1978 by the American National standards Institute [ANSI] and the American Society for Quality [ASQ].

These groups defined quality as *the totality of features and characteristics of a product or service the bears on its ability to satisfy given needs*. This definition draws heavily on the **"product and user - based approaches"** and is driven by the need to contribute value to customers and thus to influence satisfaction and preference. By the end of the 1980s, many companies had begun using a simpler, yet powerful, customer-driven definition of quality.

***"Quality is meeting or exceeding customer expectations."***

To understand this definition, one must first understand the meanings of "customer". Most people think of a customer as the ultimate purchaser of a product or service: for instance, the person who buys an automobile for personal use or the guest who registers at a hotel. These customers are more precisely referred to as consumers. Clearly, meeting the expectations of consumers is the ultimate goal of any business. But before a product reaches consumers, it may flow through a chain of many firms or departments, each of which adds some value to the product.

## 2.15. QUALITY MANAGEMENT PRINCIPLES

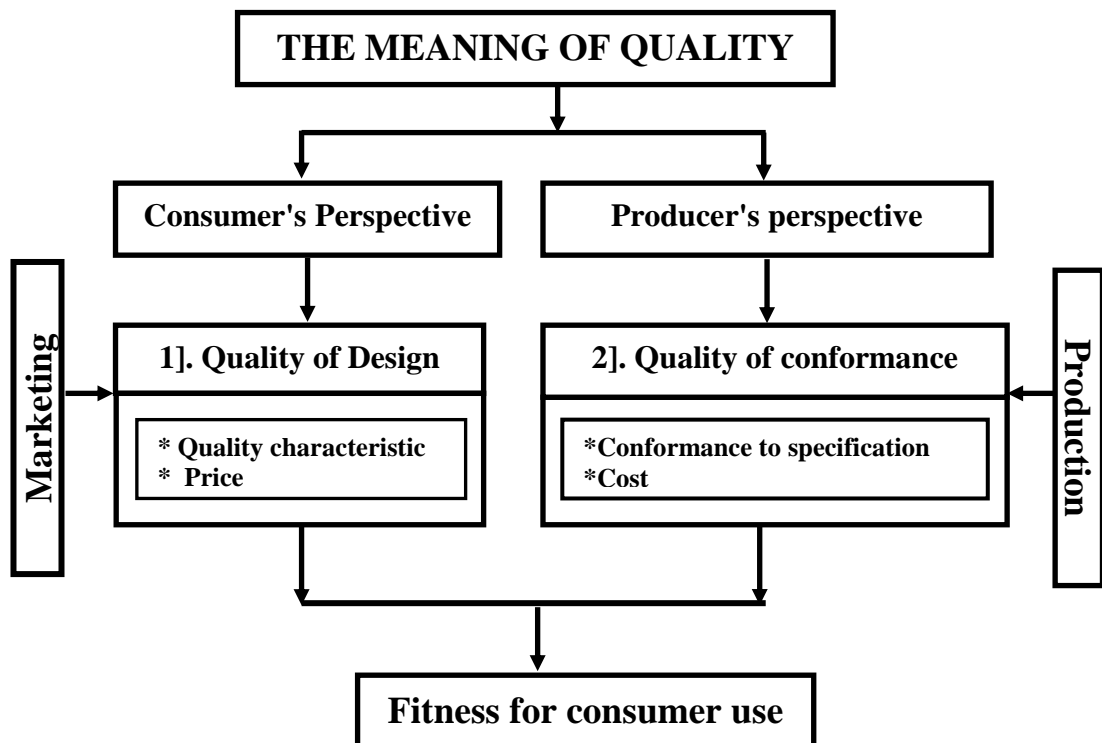
- Customer focused organization
- Leadership
- Involvement of people [Team]
- Process approach
- System approach to management
- Continuous improvements
- Factual approach to decision making
- Mutually beneficial supplier relationship

## 2.16. STEPS IN THE QUALITY DELIVERY PROCESS

1. Create "**Mission**" Statement - Defines overall purpose of the work groups activities focused on the end objectives rather than the means of achieving it.
2. Determine the outputs of the work group. Check that they fulfil the mission.
3. Identify the customer - Both internal and external who receive the out put.
4. For each out put, define agreed customers requirement, which must be met in order to achieve customer's satisfaction.
5. Develop the specifications for each output.
6. Determine the "**Group work processes**" including the identification of inputs, which will be delivered the output to the customers at the lowest internal cost.
7. Identify the measurements of each output, which will compare the actual quality level delivered with output specifications. [Random sample, Random inspection, supervision]
8. Identify any problem caused by a measurement, shortfall to target, or identify an opportunity to exceed the target at no additional cost; or an opportunity to meet customer requirement at a lower internal cost
9. Establish a project team to solve the identified problems which will improve the actual quality board delivered to customers - [capture the opportunity in step-7]
10. Measure customer satisfaction against the agreed customer requirement [Complain boxes, internal auditing, inspection team, mobile service] and get the feed back.

## 2.17. THE MEANING OF QUALITY IN THE PERSPECTIVE OF "PRODUCER" AND "CONSUMER"

[Department of Management of Technology -University of Moratuwa]



**[1]. Design quality -**  
Inherent value of the product in the market place

### Dimension of design quality

1. Performance- Basic operating characteristics.
2. Features - Extra items added to basic feature
3. Reliability - Probability that product will operate over time
4. Durability - Life span before replacement
5. Serviceability - Ease of getting repairs, speed and competence of repairing.
6. Aesthetics - Look, feel sound, smell or taste
7. Safety - Freedom from injury or harm
8. Other perceptions - Subjective perceptions based on, reputation, brand name, advertising.
9. Response -

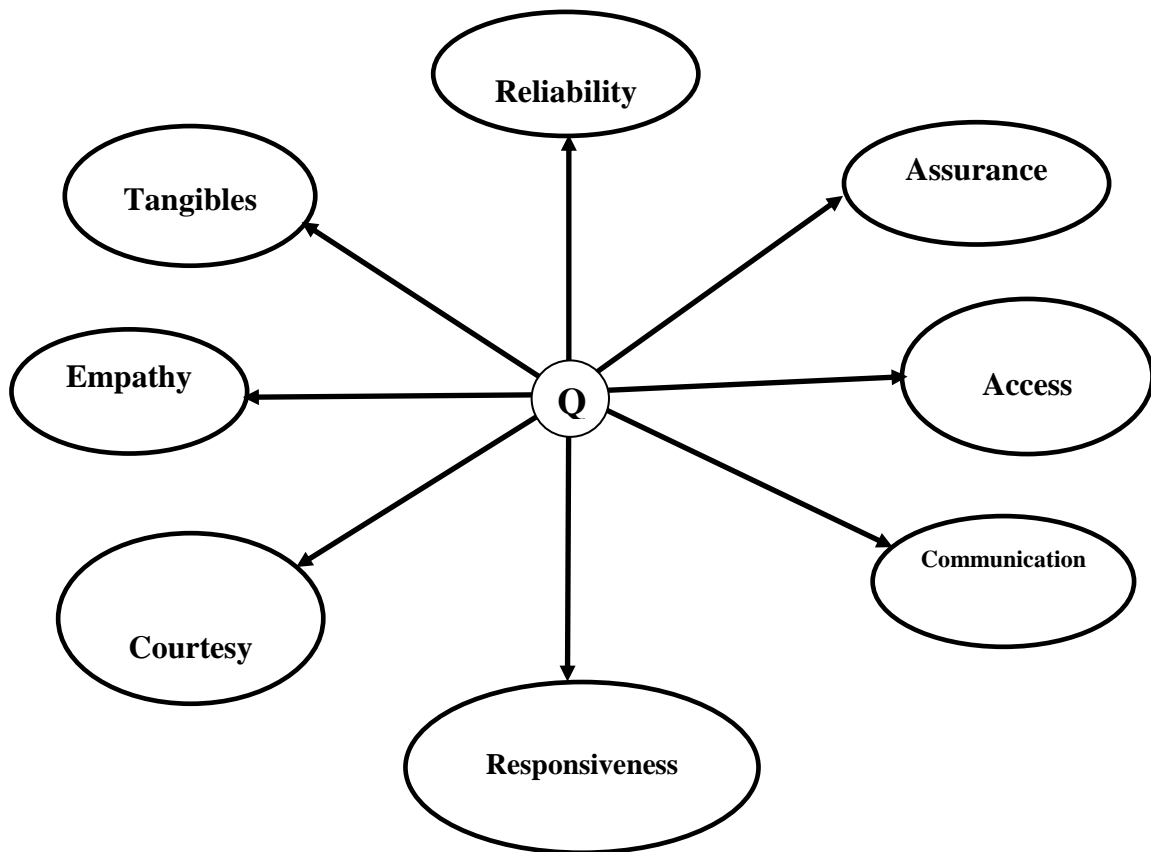
**[2]. Conformance quality -**

Degree to which the "Product or service design" specifications are met

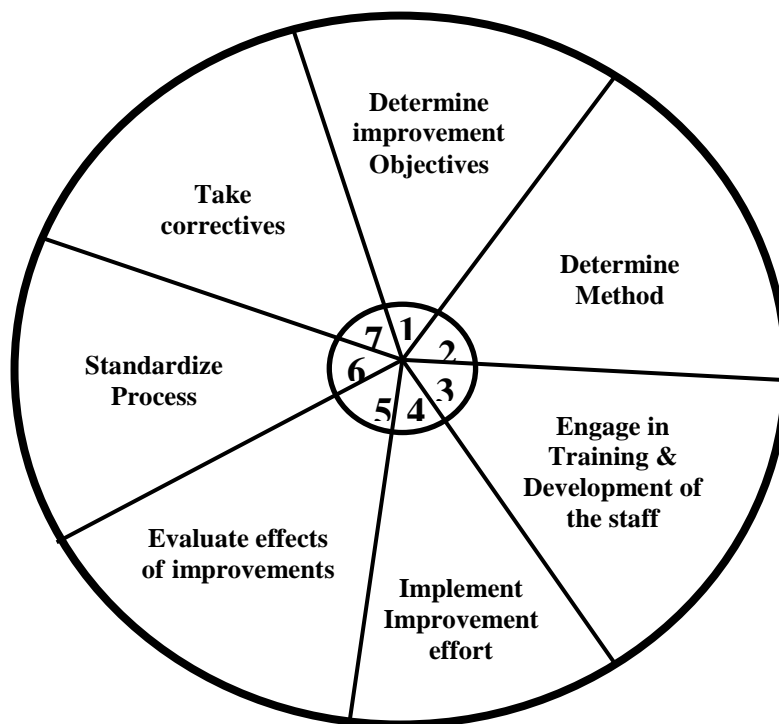
- Depends on
- Design of production process
  - Design of production process
  - Performance of machinery
  - Materials
  - Training

## 2.18. QUALITY DIMENSIONS OF A SERVICE

Reference: Sri Lanka Standards Institute



## 2.19. MODEL OF CONTINUOUS QUALITY IMPROVEMENTS



As mentioned earlier, quality is a somewhat relative concept;

There is no single prescriptive model to suit every country and different countries have different approaches, because it's depended on "**standards**" the country expected.

The drive to produce goods that are superior in world markets has led some countries – and groups of countries – to recognize or award prizes to companies that exemplify the best quality practices. [ **Philip Kotler** ]

- **Japan:** In 1951, Japan became the first country to award a national quality prize, the Deming prize [named after W. Edwards Deming, the American statistician who taught the importance and methodology of quality improvement to post-war Japan]. Deming's work formed the basis of many TQM practices.
- **United states:** In the mid - 1980s, the United States established the **Malcolm Baldrige** National Quality Award in honour of the late secretary of commerce. The Baldrige award criteria consist of seven measures, each carrying a certain number of award points: customer focus and satisfaction [with the most points], quality and operational results, management of process quality, human resource development and management, strategic quality planning, information and analysis, and senior executive leadership. [Xerox, Motorola, Federal Express, IBM, Texas Instruments, the Cadillac division of General Motors, and Ritz-Carlton hotels are some past winners. One of the late quality awards went to custom research, a highly regarded marketing research firm in Minneapolis.]
- **Europe:** The European Quality Award was established in 1993 by the European foundation for quality management and the European Organization for Quality. It is awarded to companies that have achieved high grades on certain criteria: Leadership, people management, policy and strategy, resources, processes, people satisfaction, Customer satisfaction, impact on society, and business results.  
**Europe is the initiator of an exacting set of international quality standards called ISO 9000**, Which has become a set of generally accepted principles for documenting quality.

ISO 9000 provides a framework for showing customers how quality oriented businesses around the world test products, train employees, keep records, and fix defects. Earning the ISO 90000 certification involves a quality audit every six months from a registered ISO [International standards organisation] assessor.

There is an intimate connection among product and service quality, customer satisfaction, and company profitability. Higher levels of quality result in higher levels of customer satisfaction while supporting higher prices and [often] lower cost. Therefore, quality inspection programs [QIPs] normally increase profitability. The well known PIMS [Profit Impact of Market Strategy] studies show a high correlation between relative product quality and company profitability.

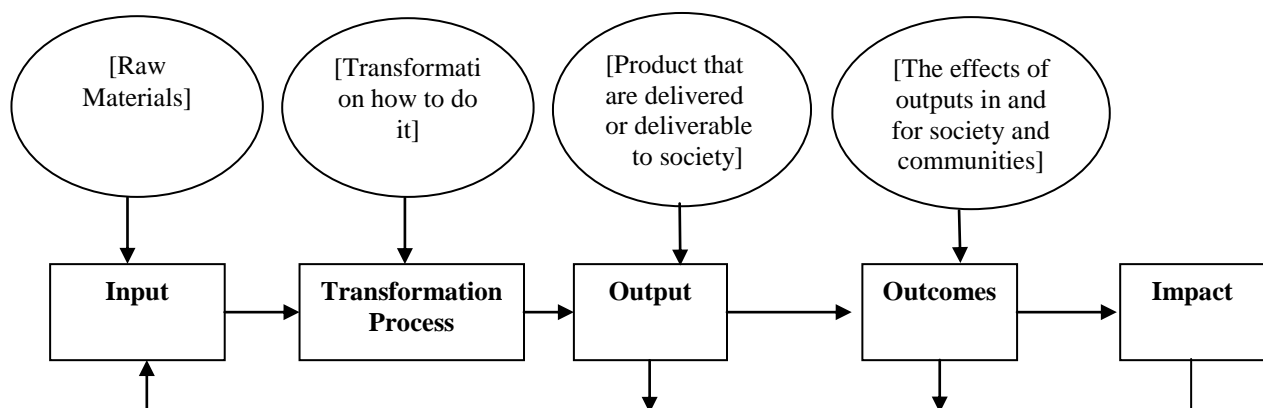
## 2.20. QUALITY MANAGEMENT SYSTEM [QMS] AND STANDARATION

In recent years the term “**system**” in quality movement has become closely associated with documenting internal organization processes, which are repeatedly performed in such a way as to gain certification from an external validating body. We refer to such one ‘system’ as ISO 9000. But the term system has also another broader connotation, a connotation which found favours during the development of TQM.

It is upon ‘system’ in this wider original meaning that emphasis in new placed.

In its most basic form, a “**system**” can be portrayed as,

**Figure 2.1: system**



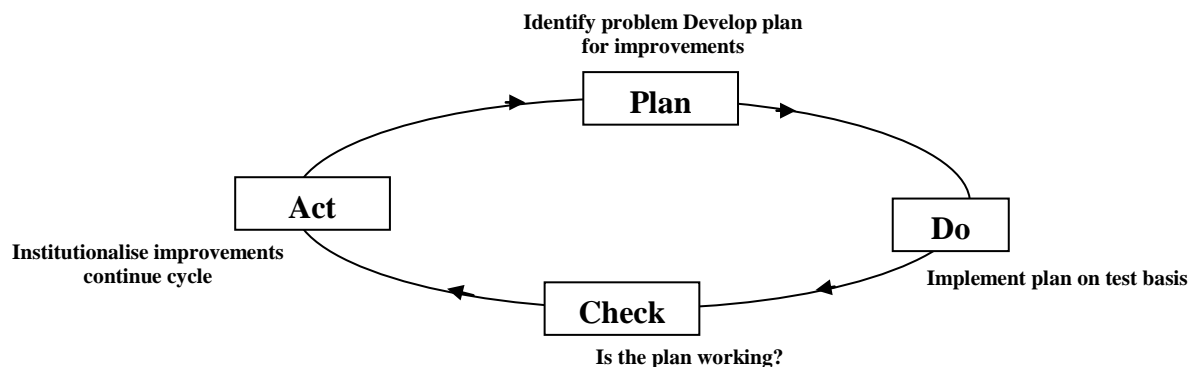
To add complexity, a "feedback loop" can be added to link output/outcome/impact to input and thus to reactivate the system into another cycle.

It is very important to note that a system approach contains a set of assumption, which is inherent with the model. When we use the model, we also have to accept and be sensitive to all the assumptions. Some of the assumption can be stated as follows.

- A number more or less interrelated elements each of which contributes to the maintenance of the total system.
- Synergy, in that the totality of the system is greater than the sum of its components elements.
- A boundary, which delineated the system and which may be open, partially open or closed in relation to exchange between the system and its environment.
- Sub-systems, comprising interrelation between particular elements within the total system and which themselves have the characteristics of system.
- A flow or process throughout the system.
- Feedback, which serves to keep the system in a state of dynamic equilibrium with respect to this environment.

The system approach in this wider, original sense and its application to the production process can be seen in Deming's work [Deming, 1986] and it is feasible to contend that it was through the utilization of a system model that Deming's contribution to the development of TQM was born and permitted the delineation of the Deming's cycle of 'Plan, Do, Check, Act' – [the PDCA cycle].

**Figure 2.2: PDCA cycle**



For any Quality Management System, (QMS) the following five critical elements should be synthesized with a view to the development of model of QMS implementation plans. The five critical aspects are.

- Vision
- Mission
- Strategy
- Values
- Key Issue

## 2.21 PHILOSOPHY AND SYSTEM COMPONENTS OF QMS

**Vision:** refers to the **future desired state**, the situation that is being sought, to which the organization and its people are committed. It provides a central focus against which the managerial process of planning, Organizing leading and controlling can be coordinated.

**Mission:** represents a series of statements of discrete objectives, allied to vision, the attainment of all, which will ensure the attainment of the future desired state.

**Strategy:** comprises the sequencing and added specificity of the mission statements to provide a set of objectives, which the organization has pledged itself to again.

**Values:** serve as a source of unity and cohesion between the members of the organization and also serve to ensure congruence between organizational actions and external customer demands and expectations. Without such congruence no organization can expect to attain efficiency, effectiveness and economy let alone ensure its long- term survival.

**Key Issues:** these are issues, which must be addressed in pursuit of the quality, which is demanded by customer to meet their needs and expectations.

The understanding of Quality management System (QMS) depends on two areas of thinking apart from the standardization process. Firstly, the understanding of TQM and secondly, the general understanding of system.

In this most recent works, Deming (1993) advocated very strongly the concept of '*profound Knowledge*', which shared the vision of system concept. In 1991, **Senge** advocated the development of 'learning organizations'. According to him, system thinking plays a very important role in creating a learning organization.



According to Senge; **system is a network of interrelated factor that work together to achieve the goal of the system.** In his book “The Fifth Discipline”, Senge articulate that developing a learning organization require not only human mastery, teamwork, shared vision and image building, but also system thinking.

The QMS can thus be looked at as a system which provides a high quality activities incorporating TQM philosophy, principles and concepts and which create added value to every aspect of an organization.

TQM demands direct involvement of top management in the delivery and improvement of quality. If applied properly. TQM can make an organization grow even in a heavily competitive market. This can only happen through significantly improved customer satisfaction and values, continuous process improvement and the measurable reduction of losses and internal and external failure costs.

### **2.21.1 Five essentials characterize of the QMS – TQM approach:**

- **Continuous process improvement.** Continuous improvement is the term used to describe the fact that process improvement in ant system takes place in incremental steps. It never stops. However good things may be, they can always be better. Continuous improvement is a relentless effort to add value for the customer.
- **Strong customer (internal and external):** orientation (quality is customer–driven): everyone has a customer. Everyone in the organization has to think about providing value to the peoples who use their product or service. This involves finding out what the user needs and wants, and ensuring that the process provides it.
- **Defect prevention:** quality management system is a philosophy that seeks to prevent defects in products or services rather than relying on inspection to sort out defects after they occur. Statistical process control, the Taguchi method for designing experiments problem solving and system failure analysis are some of the techniques that seek to prevent defects from occurring.

- **Universal responsibility:** this concept deals with the fact that quality is not only the responsibility of one department but is everyone's responsibility. There should be organization – wide participation and involvement in delivering quality goods and services to the customer. Involvement cannot be delegated. Every group in the organization should be concerned with seeking ways to improve the quality of their own product or should be concerned with seeking ways to improve the quality of their own product or service.
- **Focus on facts:** knowledge of customer's experiences of and service is essential before the processes necessary for creating customer satisfaction can be improved. In order to realize the TQM / QMS vision, we have to set up a system for the continuous measurement, collection and reporting of quality facts.

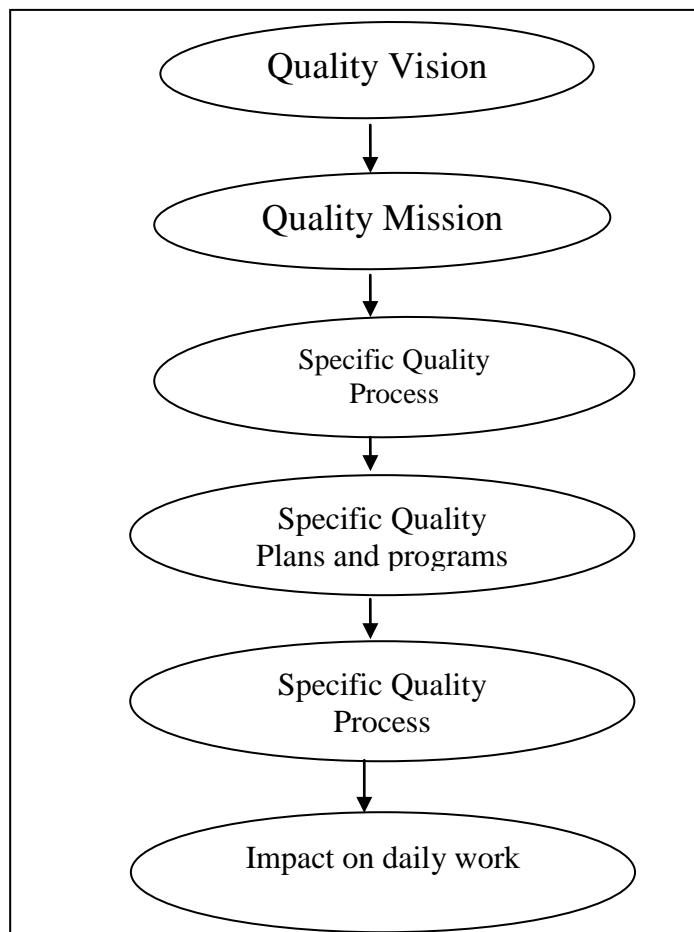
## 2.22 CONCLUSION

The modern quality revolution, as Peter Drucker has remarked, is a marking revolution in which the whole business is seen from the point of view of its final result, that is, from the customer's point of view.

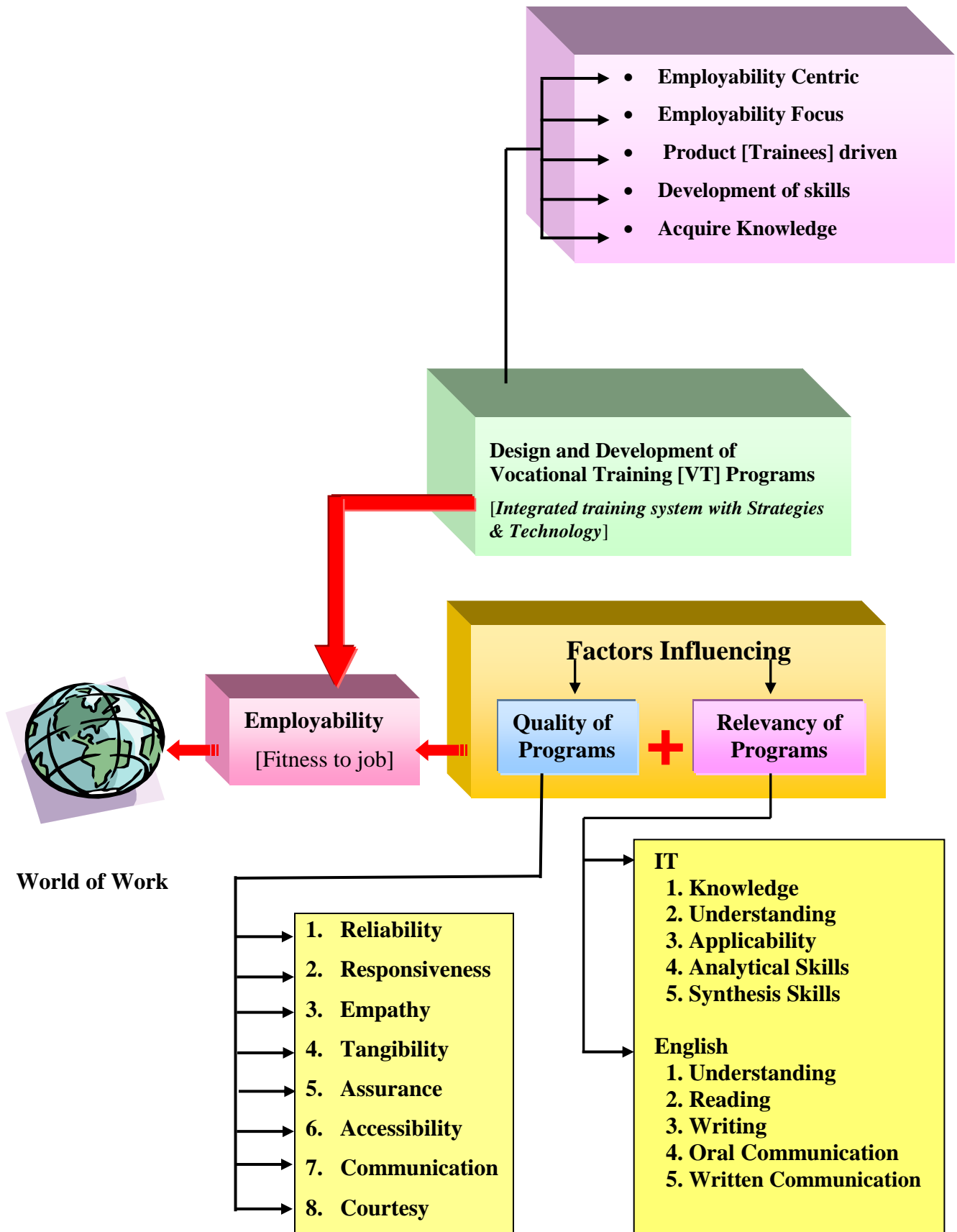
Total quality Management system requires unwavering customer orientation and it also requires incorporation of problems- solving tools and techniques in rectifying quality problems. Managing the transition to Quality Management System requires a great deal of involvement and effort of each and every employee of the organization. To prepare for this transition, management's mindset must first accept a driven-environment.

Perhaps the 'toughest part of initiating Total Quality management and Quality Management system in an organization is the creation of the 'quality culture'. The following simple diagram illustrates various steps in the process of creating a quality culture in an organization.

## 2.23 QUALITY CULTURE FRAMEWORK



## 2.24 CONCEPTUAL FRAMEWORK



## 2.25 CONCEPTUALISATION OF RESEARCH PROBLEM

Objective [Dependent Variable]	Issues [Independent Variable]	Measure [Sub Variable]	Question No	Types of Questionnaire • VT Sector Managers - VTM • Industry Sector Manager - IM
<b>Employability [Fitness to Job] Q1 [IM]</b>	<b>Quality of Programs</b>	<b>Reliability [Dependable and Accurate Performance or Trust]</b>	<b>Q2.1, Q2.2</b>	<b>IM</b>
		<b>Responsiveness [Promptness, Helpfulness, Reaction to unusual situations]</b>	<b>Q3, Q4</b>	<b>IM</b>
		<b>Empathy [Power of projection into object of Contemplation (thinking) or Accessibility]</b>	<b>Q5, Q6</b>	<b>IM</b>
		<b>Tangibility [Appearance of physical elements]</b>	<b>Q7, Q8</b>	<b>IM</b>
		<b>Assurance [Formal guarantee]</b>	<b>Q9, Q10</b>	<b>IM</b>
		<b>Accessibility [Ease of Obtaining]</b>	<b>Q11, Q12</b>	<b>IM</b>
		<b>Communication [Listening, Feed back]</b>	<b>Q13, Q14</b>	<b>IM</b>
		<b>Courtesy [Polite behaviour]</b>	<b>Q15, Q16</b>	<b>IM</b>
	<b>Relevancy of Programs</b>	<b>IT Knowledge</b>	<b>Q17</b>	<b>IM</b>
		<b>IT Understanding</b>	<b>Q18</b>	<b>IM</b>
		<b>IT Applicability</b>	<b>Q19</b>	<b>IM</b>
		<b>IT Analytical Skills</b>	<b>Q20</b>	<b>IM</b>
		<b>IT Synthesis Skills</b>	<b>Q21</b>	<b>IM</b>
		<b>English Understanding</b>	<b>Q22</b>	<b>IM</b>
		<b>English Reading</b>	<b>Q23</b>	<b>IM</b>
		<b>English Writing</b>	<b>Q24</b>	<b>IM</b>
		<b>English Oral Communication</b>	<b>Q25</b>	<b>IM</b>
		<b>English Written Communication</b>	<b>Q26</b>	<b>IM</b>
	<b>Manager Involvement on Design &amp; Development of VT Programs</b>	<b>Employability Centric</b>	<b>Q1</b>	<b>VTM</b>
		<b>Product [Trainee] Driven</b>	<b>Q2, Q3, Q4, Q5, Q6</b>	<b>VTM</b>
		<b>Development of Skills [Performance, Conditions &amp; Standards]</b>	<b>Q7, Q8</b>	<b>VTM</b>
		<b>Acquire knowledge [Enabling Objectives, Imparting Knowledge, Attitude]</b>	<b>Q9, Q10</b>	<b>VTM</b>
		<b>Employability Focus</b>	<b>Q11, Q12</b>	<b>VTM</b>

## CHAPTER THREE

## METHODOLOGY

### 3.1 METHODOLOGY

Methodology which is the overall approach towards the present research process from the theoretical underpinning to collect data and analysis data by which researcher attempts to emphasize how research is done.

As far as the methodology was concerned it was the vehicle of the present research as to go into the practice using the "Methods".

**[Methods; refers to the behavior and instrument use in selecting, constructing Techniques, while Techniques; refers to the behavior and instrument use “in performing operations”, such as Data collection, making observations]**

So, the scope of the methodology of the present research was wider than method that had been used by the researcher. Hence at the consideration of methodology, it was not only considered the methods but also the logic behind the methods were described under the Research Design given below.

### 3.2 RESERCH DESIGN

The independent variables of the Conceptual framework [model] were the “quality of programs”, “relevancy of programs” and “design & Development of programs” while the dependent variable was “employability- [Fitness to job]” within the aspects of World of Work, in which researcher designed the research modal as a single cross sectional study taking in to consideration of 33 VT programs out of 79 VT programs which conducted district wise within 18 trade areas.

The impact of design and development of Vocational Training [VT] programs within the aspect of quality and relevancy on employability upon the World of Work were studied to as find out the effectiveness of the Vocational Training [VT] programs from the perspectives of Employability.

Two structured questionnaires were used to collect “views and opinions from the respondents”.

The **First categories of respondents** were managers in the vocational training sector. **Questionnaire 01** was administered among them enabling them to furnish their views and

opinions upon design and development of Vocational Training [VT] programs. 30 managers have been selected from the vocational training ministry from the aforesaid managerial categories representing VTA.

The **Second category** of respondents was chosen from the Industry Sector Managers who had been recruiting trainees after following Vocational Training [VT] programs at VTA.

Accordingly, 48 managers from 18 trade areas on 48 VT programs had been selected randomly.

**Questionnaire 02** was made available to them and collected the responses through interviews about quality and relevancy of VT programs on specified VT programs and on specific area towards the employability aspect within the “World of Work” concept.

And also, overall view of Vocational Training [VT] programs were obtained for employability aspect [Fitness to job] since VT programs were designed to VTA recipients to perform works & duties at the place of employments.

### 3. 3 SAMPLING PLAN

Type	Category	Sample	No. of Samples	Method	Technique
			Table No 03, 04 & 05		
Field Research	VT sector	Managers	48	Interviews & Questionnaire	Open and closed end questionnaire
[Survey research]	Industry sector	Managers	48	Interviews & Questionnaire	-do-
		Total	96	-	-

**Table: 3.1 Stratified Random Sample**

Population Stratum	Population		Total No. of Programs
Trade Area	Vocational Training Programs		
<b>1. Building &amp; Construction</b>	1	Aluminum Fabricator NVQ 4	<b>13</b>
	2	Aluminum Fabricator NVQ 3	
	3	Construction Craftsman (Masonry) NVQ 4	
	4	Construction Craftsman (Masonry) NVQ 3	
	5	Construction Site Supervisor NVQ 4	
	6	Draughts person NVQ 4	
	7	Plumber NVQ 4	
	8	Plumber NVQ 3	
	9	Painter (Buildings) NVQ 3	
	10	Landscaping Technician NVQ 4	
	11	Landscaping Technician NVQ 3	
	12	Quantity Surveying Assistant NVQ 4	
	13	Bar Bender NVQ 3	
<b>2. Automotive</b>	1	Agriculture Equipment Mechanic NVQ 4	<b>16</b>
	2	Agriculture Equipment Mechanic NVQ 3	
	3	Automobile A/C Mechanic NVQ 4	
	4	Automobile A/C Mechanic NVQ 3	
	5	Automobile Mechanic NVQ 4	
	6	Automobile Mechanic NVQ 3	
	7	Automobile Painter NVQ 4	
	8	Automobile Painter NVQ 3	
	9	Automobile Tinker NVQ 4	
	10	Automobile Tinker NVQ 3	
	11	Motor Cycle Mechanic NVQ 4	
	12	Motor Cycle Mechanic NVQ 3	
	13	Three-Wheeler Mechanic NVQ 4	
	14	Three-Wheeler Mechanic NVQ 3	
	15	Automobile Electrician NVQ 4	
	16	Automobile Electrician NVQ 3	
<b>3. Electrical</b>	1	Electric Motor Winder NVQ 3	<b>11</b>
	2	Electric Motor Winder NVQ 4	
	3	Electrician NVQ 3	
	4	Electrician (Industry) NVQ 4	
	5	Electronic Appliances Technician NVQ 4	
	6	Electronic Appliances Technician NVQ 3	
	7	Mobile Phone Repairer NVQ 3	
	8	Pneumatic Technician NVQ 4	
	9	Electrical Appliance Maintenance Technician NVQ 4	
	10	Electrical Appliance Maintenance Technician NVQ 3	
	11	Solar PV System Installer NVQ 3	



<b>Population Stratum</b>	<b>Population</b>		<b>Total No. of Programs</b>
<b>Trade Area</b>	<b>Vocational Training Programs</b>		
<b>4 Ref &amp; Air-conditioning</b>	1	Electrical Appliance Maintenance Technician NVQ 4	<b>2</b>
	2	Electrical Appliance Maintenance Technician NVQ 3	
<b>5. Information Communication &amp; Multimedia Technology</b>	1	Adobe Certified Professional / Computer Graphic Designer NVQ4	<b>9</b>
	2	Computer Application Assistant NVQ3	
	3	Computer Graphic Designer NVQ 4	
	4	Computer Hardware Technician NVQ 4	
	5	ICT Technician NVQ 4	
	6	Multimedia Designing Associate NVQ 4	
	7	Software Developer NVQ 4	
	8	Web Developer NVQ 4	
	9	Computer Hardware and Network Technician with CISCO IT Essential (A+) NVQ 4	
<b>6. Food Technology</b>	1	Fruit & Vegetable Processer NVQ 3	<b>3</b>
	2	Baker/ Commis I (Pastry & Bakery) NVQ 3	
	3	Baker/ Commis I (Pastry & Bakery) NVQ 4	
<b>7. Printing &amp; Packaging</b>	1	Offset Lithographic Machine Operator NVQ 3	<b>3</b>
	2	Offset Lithographic Machine Operator NVQ 4	
	3	Book Binder	
<b>8. Hotel &amp; Tourism</b>	1	Cook	<b>4</b>
	2	Room Attendant	
	3	Food & Beverage Service	
	4	Guest Relation Officer	
<b>9. Metal &amp; Light Engineering</b>	1	Machinist (CNC Milling & Lathe) NVQ 4	<b>8</b>
	2	Machinist (General) NVQ 3	
	3	Machinist (General) NVQ 4	
	4	Welder NVQ 3	
	5	Welder NVQ 4	
	6	Welder (GAS/ARC/TIG/MAG) NVQ 4	
	7	Fabricator (Metal) NVQ 3	
	8	Fabricator (Metal) NVQ 4	
<b>10. Gem &amp; Jewelry</b>	1	Jewelry Maker (Goldsmith) NVQ 3	<b>3</b>
	2	Jewelry Maker (Goldsmith) NVQ 4	
	3	Jewelry Stone Setter	
<b>11. Wood Related</b>	1	Wood Carver NVQ 4	<b>5</b>
	2	Wood Craftsman (Buildings)- NVQ 3	
	3	Wood Craftsman (Buildings)-NVQ 4	
	4	Wood Craftsman (Furniture)- NVQ 3	
	5	Wood Craftsman (Furniture)-NVQ 4	

Population Stratum	Population		Total No. of Programs
Trade Area	Vocational Training Programs		
12.Agriculture Plantation & Livestock	1	Field Assistant (Agriculture)	3
	2	Plant Nursery Development Assistant -NVQ 3	
	3	Plant Nursery Development Assistant-NVQ 4	
13. Personal & Community	1	Beautician NVQ 3	7
	2	Beautician NVQ 4	
	3	Hair Dresser NVQ 3	
	4	Hair Dresser NVQ 4	
	5	Pre School Teacher NVQ 4	
	6	Child Caregiver NVQ 4	
	7	Photo Graphic NVQ 4	
14. Textile & Garment	1	Apparel Designing Technician NVQ 4	15
	2	Dress Maker / Tailor NVQ 2	
	3	Dress Maker / Tailor NVQ 3	
	4	Dress Maker / Tailor NVQ 4	
	5	Garment Production Supervisor NVQ 4	
	6	Garment Quality Controller NVQ 4	
	7	ISM Mechanic NVQ 3	
	8	ISM Mechanic NVQ 4	
	9	ISM Operator NVQ 3	
	10	ISM Operator NVQ 4	
	11	Pattern Maker NVQ 4	
	12	Screen Printer NVQ 3	
	13	Tailor (Gents)NVQ 4	
	14	Tailor (Gents) NVQ3	
	15	Work Study Officer NVQ 4	
15. Office Management	1	Secretarial Practice	1
16. Leather & Footwear	1	Footwear Craftsman NVQ 3	2
	2	Leather Product Craftsman NVQ3	
17. Fisheries & Aquaculture	1	Out Board Motor Mechanic NVQ 4	1
18. Health and Social Work	1	Caregiver (Elder) NVQ3	2
	2	Caregiver (Elder)NVQ4	
	Total		108

**Table: 2 Selection Criteria of Samples [VT Programs]**

Trade Area	No. of Programs	%
1.Building & Construction	13	13/108=12.04
2.Automotive	16	16/108=14.81
3.Electrical	11	10.19
4.Ref & Air-conditioning	2	1.85
5.. Information Communication & Multimedia Technology	9	8.33
6. Food Technology	3	2.78
7. Printing & Packaging	3	2.78
8.Hotel & Tourism	4	3.7
9. Metal & Light Engineering	8	7.41
10.Gem & Jewelry	3	2.78
11.Wood Related	5	4.63
12.Agriculture Plantation & Livestock	3	2.78
13.Personal & Community	7	6.48
14. Textile & Garment	15	13.89
15. Office Management	1	0.93
16. Leather & Footwear	2	1.85
17. Fisheries & Aquaculture	1	0.93
18. Health and Social Work	2	1.85
<b>Total</b>	<b>108</b>	<b>100</b>

Selection Criteria of Sampling	
% of No. of Programs	No. of Programs per Sample [Trade wise]
<b>1-4</b>	<b>1</b>
<b>5-8</b>	<b>2</b>
<b>9-12</b>	<b>3</b>
<b>13-17</b>	<b>4</b>
<b>18-21</b>	<b>5</b>

**Table: 3.3 Total Numbers of Samples**

<b>Trade Area</b>	<b>No. of Program per Sample</b>	<b>Name of Programs</b>	<b>Program's Code</b>	<b>VT Sector Managers</b>	<b>Industry Sector Managers</b>
1. Building & Construction	4	Mason	1.1	1	1
		Plumber	1.2	1	1
		Quantity Surveying	1.3	1	1
		Landscaping	1.4	1	1
2. Automotive	5	Automobile Mechanic	2.1	1	1
		Automobile Tinker	2.2	1	1
		Motor Cycle Mechanic	2.3	1	1
		Three-Wheeler Mechanic	2.4	1	1
		Automobile Electrician	2.5	1	1
3. Electrical	4	Electrician	3.1	1	1
		Electronic Appliances Technician	3.2	1	1
		Pneumatic Technician	3.3	1	1
		Electrical Appliance Maintenance Technician-NVQ 4	3.4	1	1
4. Ref & Air-conditioning	2	Electrical Appliance Maintenance Technician	4.1	1	1
		Electrical Appliance Maintenance Technician NVQ3	4.2	1	1
5. Information Technology	3	Adobe Certified Professional / Computer Graphic Designer	5.1	1	1
		Computer Application Assistant	5.2	1	1
		Computer Graphic Designer	5.3	1	1
6. Food Technology	2	Baker/ Commits I (Pastry & Bakery) NVQ 3	6.1	1	1
		Baker/ Commits I (Pastry & Bakery) NVQ 3	6.2	1	1
7. Printing	2	Offset Lithographic Machine Operator NVQ 4	7.1	1	1
		Book Binder	7.2	1	1
8. Hotel & Tourism	2	Room Attendant	8.2	1	1
		Food & Beverage Service	8.1	1	1
9. Metal & Light Engineering	3	Mechanist	9.1	1	1
		Aluminum Fabricator	9.2	1	1
		Welder	9.3	1	1
10. Gem & Jeweler	2	Jewelry Maker (Goldsmith)	10.1	1	1
		Jeweler Stone Setter	10.2	1	1
11. Wood Related	3	Wood Carver NVQ 4	11.1	1	1
		Wood Craftsman (Buildings)	11.2	1	1
		Wood Craftsman (Furniture)	11.3	1	1

Trade Area	No. of Program per Sample	Name of Programs	Program's Code	VT Sector Managers	Industry Sector Managers
12. Agriculture Plantation & Livestock	2	Field Assistant (Agriculture)	12.1	1	1
		Plant Nursery Development Assistant	12.2	1	1
13. Personal & Community	3	Child Caregiver	13.1	1	1
		Pre School Teacher	13.2	1	1
		Beautician	13.3	1	1
14. Textile & Garment	5	Pattern Maker	14.1	1	1
		Screen Printer	14.2	1	1
		ISM Operator	14.3	1	1
		Dress Maker	14.4	1	1
		Apparel Designing Technician	14.5	1	1
15. Office Management	1	Secretarial Practice	15.1	1	1
16. Leather & Footwear	2	Footwear Craftsman	16.1	1	1
		Leather Product Craftsman	16.2	1	1
17. Fisheries	1	Out Board Motor Mechanic	17.1	1	1
18. Health and Social Work	2	Caregiver (Elder) NVQ3	18.1	1	1
		Caregiver (Elder) NVQ3	18.2	1	1
<b>Total</b>	<b>48</b>			<b>48</b>	<b>48</b>

### 3.4 RESERCH TECHNIQUES

In this context; Researcher used the descriptive study -To portray characteristics of situation to discover the causal relationship between Dependent variable of Employability to “World of Work” and independent variables such as “Design & Development of Vocational Training [VT] programs”, “Quality of Programs” & “Relevancy of Programs” by a “field type research” [Survey research] through the method of enquiries [facts finding enquiries] and used the instrument as structured Questionnaire and direct interviews of cross sectional manner.

The survey method was versatile in its greatest strength being the only practical way to gather various types of information and was the most economical way in many situations as such, the survey method was found to be more appropriate in collecting data due to the comparative advantage in terms of time & cost.

Thereby structured questionnaires characterized by e-mail, hand delivery, by courier service were selected as a mode of data collection in the process.

Subsequently, Statistical tools were used to analyze the data and to test the hypothesis in view of establishing the relationship between the Dependent variable & Independent variables of the model

### 3.5 QUESTIONNAIR DEVELOPMENT

**Questionnaire 01** and **Questionnaire 02** had been structured on the base of “conceptual framework” [model] for data collection process from the respondents to gather views & opinions, with the consultation of Supervisor to the research, associates, VTA Trainers and also the questionnaires which were available and used at the Research & development Division of VTA

### 3.6 DATA ANALYSIS

Data analysis was done using **SPSS-Software**.

**Following phases were followed to analyze the data in this Research.**

#### **1<sup>st</sup> phase**

##### **Descriptive Analysis of observed Data**

The Descriptive Analysis was done in order to identify the nature of the sample with respect to background of the organizations practices and performances. The relationship of independent variable with its sub variables were measured by using Univariate Analysis-the statistical concept known as Central Tendency & Dispersion [Minimum, Maximum, Mean/Mode, Standard Deviation-SD].

**2<sup>nd</sup> phase** was the Checking Validity & Reliability of the variables

##### **Checking Validity**

The validity of measuring instruments was tested in the following manner:

- Content Validity- Checked whether the measurements adequately represent the items under the study. Since, the indicators of this research had been based on the literature where the Content Validity was mostly justified, as it was an inherent to the research measurements itself.
- Criterion Validity- Both “Concurrent Validity & “Predictive Validity” were considered. Concurrent Validity was used to test the description of **present**. Predictive Validity was checked for the **future**. In this research it was not expected to finalize a model for forecasting. **It was only expected to test relationships**. Hence Predictive Validity was ignored due to the reason that this research does not use to forecast anything.
- Construct Validity- The main Validity type. It was measured using set of variables. For the Construct Validity, the variance extract by each set of variables under each research construct was taken in to account by using **Factor Analysis Method**.

## Checking Reliability

The reliability of the scale measurements was tested for **internal consistence** using **Cronbach's Alpha**, since there were several indicators for each construct variable.

The SPSS software had been used to check the reliability& consistence with the common criteria of, greater than **0.7 degree** level for reliability.

## 3<sup>rd</sup> phase

Statistical Analysis to test the Hypothesis.

The main techniques were Factor Analysis, Correlation and Regression analysis.

1. The factor analysis was carried to check, if the independent variables were reliable with its sub variables, how it became reliable? And if the independent variables were not reliable, how the sub variables become reliable with its independent variables?

2. The Correlation analysis was carried using the **Pearson Correlation factor-**

“**R**”, Single Correlation.  **$-1 < R < +1$**  **R** was a tool to see the significant among variables. [To measure the degree to which two variables are related. In other wards, to measure the degree of association]. The criteria used was, correlation was significant at the 0.05[5%] level. Single tailed-positively correlated.

3. The Regression analysis was carried out since the Regression analysis and the Correlation analysis goes together and Correlation becomes an auxiliary tool in Regression. Furthermore, Correlation can be used to describe how well the Regression line explains the variation in the values of the independent variables to dependent variable.

In addition to the “**R**” value, the **Coefficient of Determination-[R squared]** was computed to see how the independent variables were associated with dependent variable and also to see how strongly it was expressed that the independent variable depends on dependent variable, which has been explained by the regression.

**a]** The relationship of independent variable of “Design & Development of programs” with its sub variables of [1] Employability Centric [Centrality], [2] Product [Trainees] driven, [3] Development of skills, [4] Acquire Knowledge, [5] Employability focus, were measured by using Univariate Analysis-the statistical concept known as Central Tendency & Dispersion [Minimum, Maximum, Mean/Mode, Standard Deviation-SD]

Using Correlation Analysis, **Correlation Co-efficient – “R”** was calculated to test the significant among variables and to measure the degree to which two variables of “Employability” and

managerial involvement in “Design & Development of programs” were related, and to measure the degree of relationship between two variables. In addition to the **R**-value, by the computation of **Coefficient of Determination-[R squared]**, it was calculated that how strongly variables were associated in the Model.

**[b]** The relationship of independent variable of “Quality of programs” with its sub variables of [1] Reliability, [2] Responsiveness, [3] Empathy, [4] Tangibility, [5] Assurance, [6] Accessibility, [7] Communication and [8] Courtesy, were measured by using Univariate Analysis and also using Correlation Analysis. Correlation was calculated between “Employability” and “Quality of programs” to find the significance of variables.

**[c]** The relationship of independent variable of “Relevancy of Programs” with its sub variables of [1] IT Knowledge, [2] IT Understanding [3] IT Application [4] IT Analytical Skills [5] IT Synthesis Skills [6] English Understanding [7] English Reading [8] English Writing [9] English Oral Communication [10] English Written Communication, were measured by using Univariate Analysis and also using Correlation Analysis. Correlation was calculated between “Employability” and “Relevancy of programs” to find the significance of variables.

**[d]** Employability was measured as overall View of “Employability” of the VT Programs by a variable on “**Likert Scale**” as to find variability.

**[e]** Correlation between the following each independent variable using Correlation analysis was computed.

1. Quality of Programs & Relevancy of Programs
2. Quality of Programs & Design & Development of programs
3. Relevancy of Programs & Design & Development of programs



### 3.7 TESTING OF HYPOTHESIS

- (a) **Hypothesis** was tested by using likert scale from “Highly satisfied” to “not satisfied at all” and “strongly recommended” to “not recommended at all”

**Table 3.4: Testing of Hypothesis (lickert scale)**

Level of Responsiveness	Level of Responsiveness	Marks allocated on Likert scale	Level of satisfaction
Strongly Recommended	Highly satisfied	5	
Recommended	Satisfied	4	
Neutral	Neutral	3	Satisfied
Not Recommended	Not satisfied	2	Average Satisfied
Not Recommended at All	Not satisfied at all	1	Dissatisfied

The number indicated along on the scale values given above were allocated to each answer with 1-5 depending on their level of satisfaction according to the likert scale.

Score level 1 to 5 on the likert scale was divided to 4 equal parts. Thus; this 4 equal parts were again divided to 3 equal parts ranging from Dissatisfied, Average Satisfied and Satisfied and Hence; justified as follows  $[4/3=1.33] + 1 = 2.33$  and  $2.33+1.33=3.67$

Dissatisfied	Average satisfy	Satisfy	
1	2.33	3.67	5

- (b) Credibility of the Hypothesis was tested using likert scale as stated below.

<u>Level of Satisfaction</u>	<u>Marks allocated</u>
Strongly recommended	5
Recommended	4
Neutral	3
Not recommended	2
Not recommended at all	1

The number indicated on the scale values, which allocated to each answer with 1-5 depending on their level of recommendation.

## CHAPTER FOUR


### DATA PRESENTATION AND ANALYSIS

#### 4.1 INTRODUCTION

This chapter deals with the presentation of empirical data and analysis of views and opinions of the respondents. Twelve questions for the VT sector Managers [VTM] and twenty six questions for Industry sector Managers [IM] have been formulated and forwarded respectively in the form of questionnaires. The responses were measured using five point likert scale. The respondents were asked to indicate their preferences and marks were allocated as accordingly.

The measurement criterion is as follows.

**Table 4.1**  
**Measurement Criterion**

Level of Agreement		Scale	
Highest degree of Agreement		Strongly Agree	- 5
High degree of Agreement		Agree	- 4
Natural		Neutral	- 3
Low degree of Agreement		Disagree	- 2
Lowest degree of agreement		Strongly Disagree	- 1

## 4.2 THE PROFILE OF QUESTIONNAIRES AND THE WAY OF STRUCTURED UPON THE LIKERT SCALE.

**Table 4.2**

Measurement structure upon VT sector managers commitment for design and Development of VT Programs”

	No. of Questions	Maximum Marks	Minimum Marks
1. Employability Centric	01	05	01
2. Product [Trainee] driven	05	25	05
3. Development of Skills	02	10	02
4. Acquire Knowledge	02	10	02
5. Employability focus	02	10	02
Total	12	60	12

**Table 4.3**

Measurement structure upon the industry sector manager's views for Quality of Programs

	No. of Questions	Maximum Marks	Minimum Marks
1. Reliability	02	10	02
2. Responsiveness	02	10	02
3. Empathy	02	10	02
4. Tangibility	02	10	02
5. Assurance	02	10	02
6. Accessibility	02	10	02
7. Communication	02	10	02
8. Courtesy	02	10	02
Total Marks		80	16

**Table 4.4**

Measurement structure upon the industry sector manager's views for Relevancy of program towards the Employability.

	No. Of Questions	Maximum Marks	Minimum Marks
<b>IT</b>			
1. Knowledge	01	05	01
2. Understanding	01	05	01
3. Applicability	01	05	01
4. Analytical Skills	01	05	01
5. Synthesis Skills	01	05	01
<b>English</b>			
1. Understanding	01	05	01
2. Reading	01	05	01
3. Writing	01	05	01
4. Oral Communication	01	05	01
5. Written Communication	01	05	01
Total Marks		50	10

**Table4.5**

Measurement structure upon the industry sector manager's overall view of VT Programs towards the Employability.

Overall view of the VT Programs [Overall Measurement]	Maximum Marks	Minimum Marks
	05	01
Total Marks	05	01

## 4.3 DESCRIPTIVE STATISTICS ANALYSIS

### A] Employability

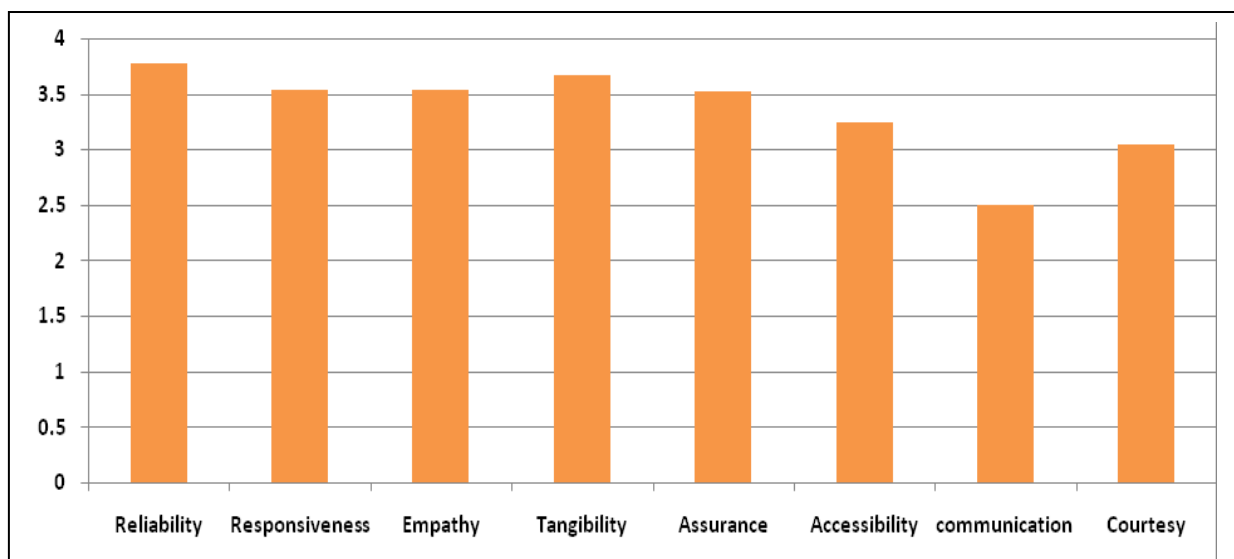
**Table 4.6**  
Descriptive Statistics of Employability

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Employability [Independent variable]	<b>48</b>	<b>2</b>	<b>4</b>	<b>3.31</b>	<b>.719</b>	<b>0.517</b>
Valid N (list wise)	48					

### B] Quality

**Table 4.7**  
Descriptive Statistics of Quality

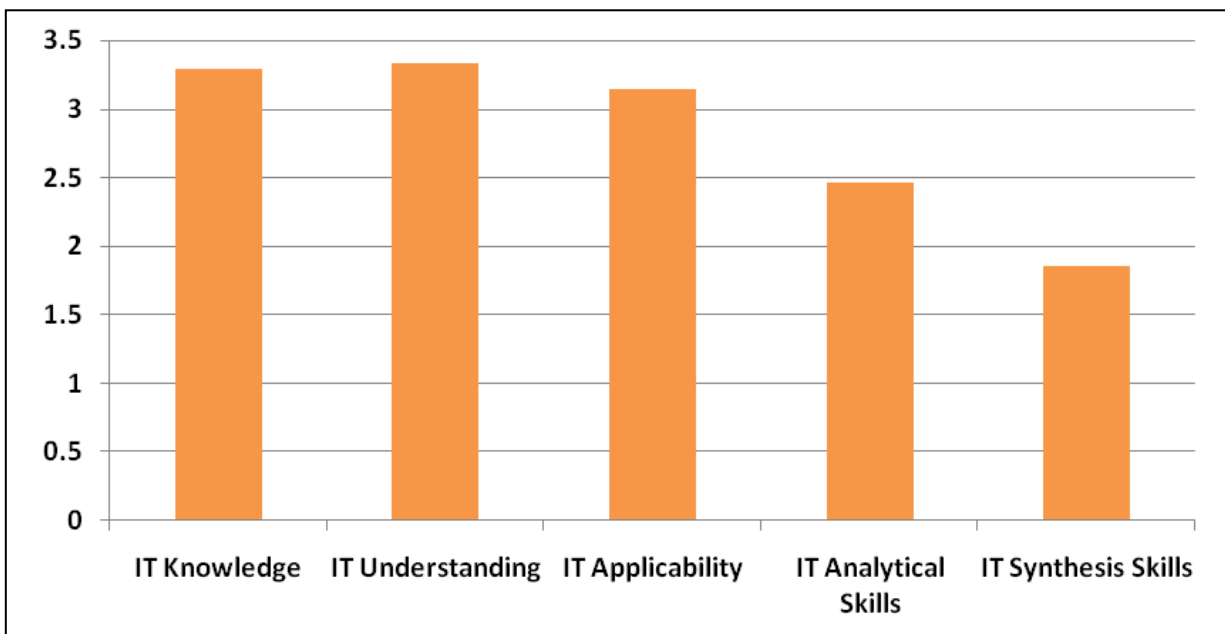
Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Reliability	48	2.5	4.5	3.781	.3846	.148
Responsiveness	48	3.0	4.0	3.531	.2807	.079
Empathy	48	3.0	4.0	3.542	.1736	.030
Tangibility	48	3.0	4.0	3.667	.3472	.121
Assurance	48	3.0	4.0	3.521	.1774	.031
Accessibility	48	3.0	3.5	3.240	.2524	.064
communication	48	2.5	2.5	2.500	0.0000	0.000
Courtesy	48	3.0	4.0	3.052	.2124	.045
Valid N (list wise)	48					



## C] IT Relevancy

**Table 4.8**  
Descriptive Statistics of IT Relevancy

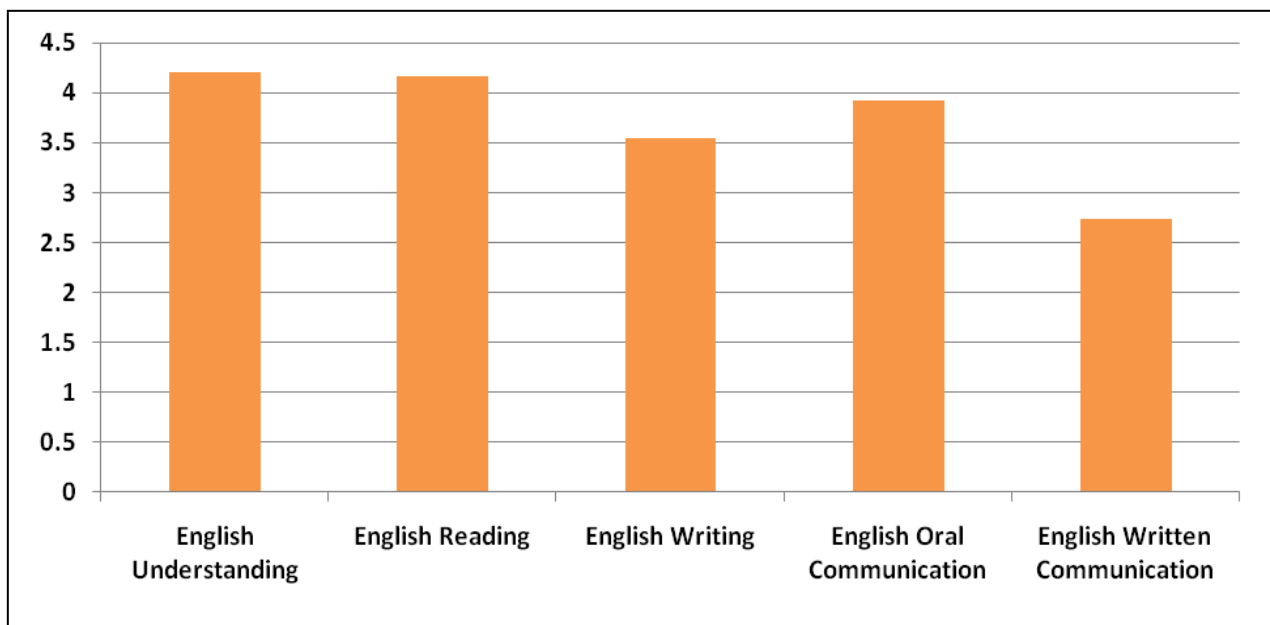
Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
IT Knowledge	48	2.00	5.00	3.2917	.84949	.722
IT Understanding	48	2.00	5.00	3.3333	.95279	.908
IT Applicability	48	2.00	5.00	3.1458	.98908	.978
IT Analytical Skills	48	1.00	4.00	2.4583	.87418	.764
IT Synthesis Skills	48	1.00	4.00	1.8542	.87494	.766
Valid N (list wise)	48					



## D] English Relevancy

**Table 4.9**  
Descriptive Statistics of English Relevancy

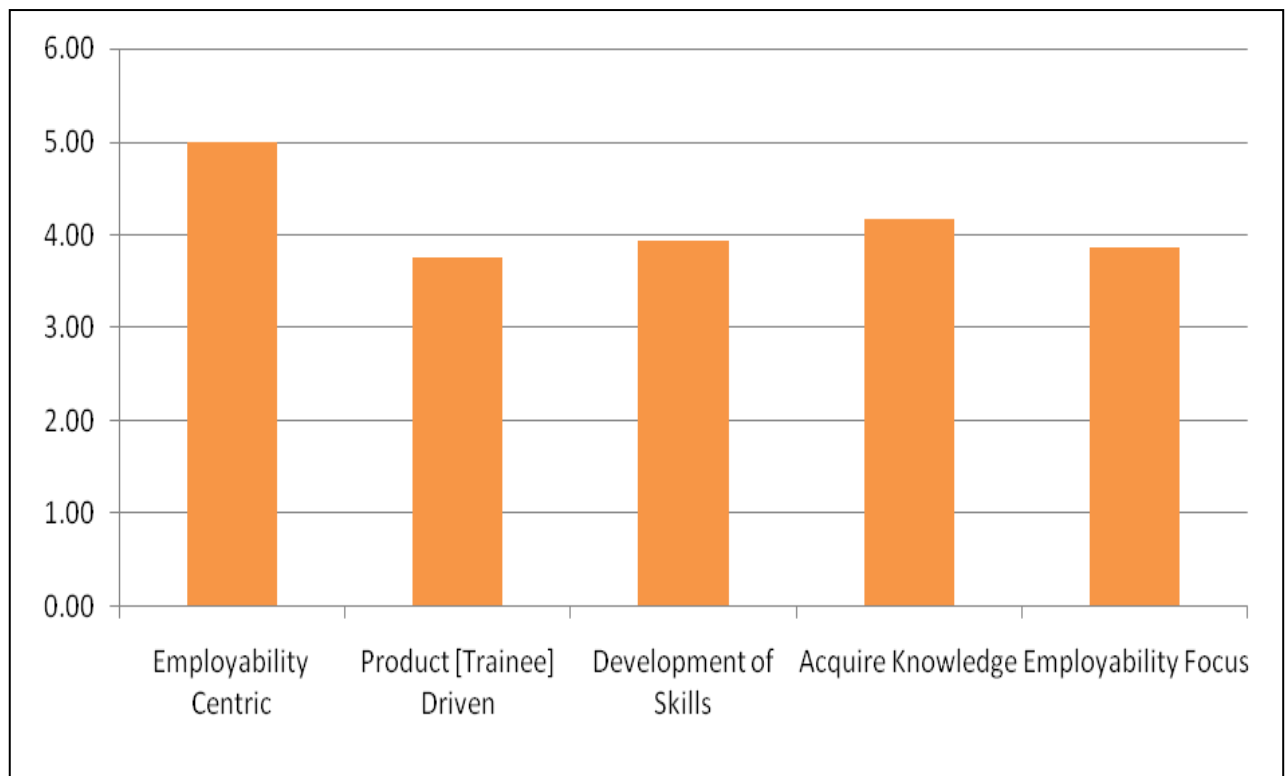
Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
English Understanding	48	4.00	5.00	4.2083	.41041	.168
English Reading	48	4.00	5.00	4.1667	.37662	.142
English Writing	48	3.00	4.00	3.5417	.50353	.254
English Oral Communication	48	3.00	5.00	3.9167	.34723	.121
English Written Communication	48	2.00	4.00	2.7292	.79197	.627
Valid N (list wise)	48					



## E] Manager Involvement

**Table 4.10**  
**Descriptive Statistics of Manager Involvement**

	N	Minimum	Maximum	Mean	Std. Deviation
Employability Centric	48	5	5	5.00	0.000
Product [Trainee] Driven	48	3.20	4.40	3.7458	.29962
Development of Skills	48	3.0	4.5	3.927	.2524
Acquire Knowledge	48	3.5	5.0	4.167	.3472
Employability Focus	48	3.5	4.0	3.854	.2297
Valid N (list wise)					





**4.3.1.1: Summary of findings of Descriptive statistics Analysis**  
**[Level of satisfaction status determined by the values on likert scale]**

Variables		Satisfaction Status
Construct	Concept [Sub]	
A] Employability	-	<b>Average Satisfied</b>
B] Quality	Reliability	<b>Satisfied</b>
	Tangibility	<b>Satisfied</b>
	Responsiveness	<b>Average Satisfied</b>
	Assurance	<b>Average Satisfied</b>
	Accessibility	<b>Average Satisfied</b>
	Communication	<b>Average Satisfied</b>
	Courtesy	<b>Average Satisfied</b>
	Empathy	<b>Average Satisfied</b>
C] IT Relevancy	IT Knowledge	<b>Average Satisfied</b>
	IT Understanding	<b>Average Satisfied</b>
	IT Applicability	<b>Average Satisfied</b>
	IT Analytical Skill	<b>Average Satisfied</b>
	IT Synthesis Skill	<b>Dissatisfied</b>
D] English Relevancy	Understanding	<b>Satisfied</b>
	Reading	<b>Satisfied</b>
	Writing	<b>Satisfied</b>
	Oral Communication	<b>Satisfied</b>
	Written Communication	<b>Average Satisfied</b>
E] Managers Commitment	Employability Centric	<b>Satisfied</b>
	Acquire Knowledge	<b>Satisfied</b>
	Employability Focus	<b>Satisfied</b>
	Product [Trainees] Driven	<b>Average Satisfied</b>
	Development of Skills	<b>Average Satisfied</b>

### 4.3.2 Reliability Analysis

#### A) Employability –Not applicable

#### B) Quality

**Table 4.11: Case Processing Summary of Quality**

		N	%
Cases	Valid	48	100.0
	Excluded (a)	0	.0
	Total	48	100.0

[a] List wise deletion based on all variables in the procedure.

**Table 4. 12: Reliability Statistics of Quality**

Cronbach's Alpha	N of Items
.414	8

#### C) IT Relevancy

**Table 4.13: Case Processing Summary of IT Relevancy**

		N	%
Cases	Valid	48	100.0
	Excluded (a)	0	.0
	Total	48	100.0

[a] List wise deletion based on all variables in the procedure.

**Table 4. 14: Reliability Statistics of IT Relevancy**

Cronbach's Alpha	N of Items
.920	5

#### D) English Relevancy

**Table 4. 15: Case Processing Summary Of English Relevancy**

		N	%
Cases	Valid	48	100.0
	Excluded (a)	0	.0
	Total	48	100.0

[a] List wise deletion based on all variables in the procedure.

**Table 4. 16: Reliability Statistics of English Relevancy**

Cronbach's Alpha	N of Items
.695	5

#### E) Manager Involvement

**Table 4. 17: Case Processing Summary of Manager Involvement**

		N	%
Cases	Valid	48	100.0
	Excluded (a)	0	.0
	Total	48	100.0

[a] List wise deletion based on all variables in the procedure.

**Table 4. 18: Reliability Statistics of Manager Involvement**

Cronbach's Alpha	N of Items
-.844	4

#### 4.3.2.1: Summary of findings of Reliability Analysis.

Variable			Reliability Statistics		Assumed Reliability Standard	Reliability of Variables	Measurements of the Internal Consistence
Construct			Cronbatch Alpha	No of Items			
Dependent	Independent	[Sub] Concept					
A] Employability	—	—	—	—	—	—	—
	B] Quality	8	0.414	8	0.7	Not reliable	No consistence
	C] IT Relevancy	5	0.920	5	0.7	Reliable	Consistence
	D] English Relevancy	5	0.695 [Approx 0.7]	5	0.7	Reliable	Consistence
	E] Manager Involvement for Design & Development of VT Programs	5	0.110	4	0.7	Not reliable	No consistence

The Reliability analysis shows that the Two Independent Variables out of Four, namely “Quality of Programs -[Q]” and “Managerial Involvement [Commitment] in Design & Development of VT Programs – [MI]” in the Model [Conceptual Frame Work], the **Cronbach’s Alpha values** are less than the researcher assumed reliability standard of 0.7 value.

According to the statistical analysis it was found that it is not reliable to consider “Q” as one complete variable and “MI” as one complete variable since all the respective sub variables [eight sub variables of “Q” and four sub variables out of five of “MI”] of each of these two Independent Variables do not go together [consistence as intact].

However, Relevancy of Programs on IT and English were reliable as **Cronbach’s Alpha values** were greater than the researcher assumed reliability standard value of 0.7.

**Therefore it was further analyzed and found that, if the Independent Variables are reliable, how it becomes reliable? If the Independent Variables were not reliable, why it was not reliable? And how it can be reliable?**

Thereby, factor Analysis was carried out and results were given below.

### 4.3.3: Factor Analysis

#### B] Quality

**Table 4.19**  
**Communalities of quality**

	Initial	Extraction
Reliability	1.000	.732
Responsiveness	1.000	.772
Empathy	1.000	.566
Tangibility	1.000	.516
Assurance	1.000	.814
Accessibility	1.000	.540
Courtesy	1.000	.578

Extraction Method: Principal Component Analysis.

**Table 4.20**  
**Total Variance Explained of Quality**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.743	24.898	24.898	1.743	24.898	24.898	1.593	22.759	22.759
2	1.707	24.391	49.289	1.707	24.391	49.289	1.545	22.072	44.830
3	1.067	15.241	64.530	1.067	15.241	64.530	1.379	19.700	64.530
4	.899	12.837	77.366						
5	.803	11.476	88.842						
6	.473	6.758	95.600						
7	.308	4.400	100.000						

Extraction Method: Principal Component Analysis.

**Table 4.21**  
**Component Matrix of quality (a)**

	Component		
	1	2	3
Reliability	.011	.830	.207
Responsiveness	.159	.665	.551
Empathy	-.056	.643	-.385
Tangibility	.428	-.320	.480
Assurance	.754	.166	-.466
Accessibility	.656	-.168	.284
Courtesy	.729	.060	-.208

Extraction Method: Principal Component Analysis.  
a 3 components extracted.

**Table 4.22**  
**Rotated Component Matrix of quality (a)**

	Component		
	1	2	3
Reliability	.042	.816	-.254
Responsiveness	-.016	.866	.147
Empathy	.233	.349	-.624
Tangibility	.097	.019	.712
Assurance	.900	-.004	-.057
Accessibility	.411	.077	.604
Courtesy	.740	.033	.170

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a Rotation converged in 5 iterations.

**Table 4.23**  
**Component Transformation Matrix of Quality**

Component	1	2	3
1	.869	.118	.480
2	.157	.855	-.494
3	-.469	.504	.725

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.

## C] Factor Analysis-IT

**Table 4.24**  
**Communalities of IT relevancy**

	Initial	Extraction
IT Knowledge	1.000	.912
IT Understanding	1.000	.430
IT Applicability	1.000	.933
IT Analytical Skills	1.000	.830
IT Synthesis Skills	1.000	.730

Extraction Method: Principal Component Analysis.

**Table 4.25**  
**Total Variance Explained of IT Relevancy**

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.834	76.685	76.685	3.834	76.685	76.685
2	.747	14.945	91.630			
3	.212	4.232	95.862			
4	.159	3.180	99.041			
5	.048	.959	100.000			

Extraction Method: Principal Component Analysis.

**Table 4.26**  
**Component Matrix of IT Relevancy (a)**

	Component
	1
IT Knowledge	.955
IT Understanding	.656
IT Applicability	.966
IT Analytical Skills	.911
IT Synthesis Skills	.854

Extraction Method: Principal Component Analysis.

(a). 1 components extracted.

## D] Factor Analysis-English

**Table 4.27**  
**Communalities of English Relevancy**

	Initial	Extraction
English Understanding	1.000	.771
English Reading	1.000	.683
English Writing	1.000	.348
English Oral Communication	1.000	.157
English Written Communication	1.000	.596

Extraction Method: Principal Component Analysis.

**Table 4.28**  
**Total Variance Explained of English Relevancy**

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.555	51.098	51.098	2.555	51.098	51.098
2	1.120	22.405	73.503			
3	.763	15.260	88.763			
4	.427	8.534	97.297			
5	.135	2.703	100.000			

Extraction Method: Principal Component Analysis.

**Table 4.29**  
**Component Matrix of English Relevancy (a)**

	Component
	1
English Understanding	.878
English Reading	.826
English Writing	.590
English Oral Communication	.396
English Written Communication	.772

Extraction Method: Principal Component Analysis.

(a) 1 component extracted.

## E] Factor Analysis-Manager Involvement

**Table 4.30**  
**Communalities of Manager Involvement**

	Initial	Extraction
Product Driven	1.000	.418
Development of Skills	1.000	.557
Acquire Knowledge	1.000	.849
Employability Focus	1.000	.809

Extraction Method: Principal Component Analysis.

**Table 4.31**  
**Total Variance Explained of Manager Involvement**

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.451	36.278	36.278	1.451	36.278	36.278	1.448	36.210	36.210
2	1.181	29.537	65.815	1.181	29.537	65.815	1.184	29.606	65.815
3	.867	21.667	87.482						
4	.501	12.518	100.000						

Extraction Method: Principal Component Analysis.

**Table 4.32**  
**Component Matrix of Manager Involvement (a)**

	Component	
	1	2
Product Driven	.646	-.004
Development of Skills	.734	-.134
Acquire Knowledge	-.355	.851
Employability Focus	.608	.663

Extraction Method: Principal Component Analysis.

a). 2 components extracted.



**Table 4.33****Rotated Component Matrix of Manager Involvement (a)**

	Component	
	1	2
Product Driven	.643	-.069
Development of Skills	.716	-.208
Acquire Knowledge	-.267	.882
Employability Focus	.671	.599

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

(a) Rotation converged in 3 iterations.

**Table 4.34****Component Transformation Matrix of Manager Involvement**

Component	1	2
1	.995	-.101
2	.101	.995

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

## Summary of Factor Analysis Results

As shown in the Table 4.35, which was given below was based on the criteria in which, that the **Eigen values** of the factor is greater than one [01]; that factor to be extracted. Because, those factors explain adequate loading.

The appropriate sub variables of those factors are to be then identified and hence loading capacity of sub variables have been assumed by the researcher as **+ or - 0.6 or more**.

**Table 4.35**  
Summary of factor Analysis Results

Variable	Output							Outcome [Value over + or – 0.6]	
	Total variance explained			Extraction sums of Squared loadings	Rotated sum of Squared loadings	Rotated component matrix [Value over + or – 0.6]			
	Eigenvalus								
“Quality of VT Programs” [Q]	Grater than 01[one]	Components	Cumulative % exceeds 50% At 3 <sup>rd</sup> component	Cumulative % exceeds 50 % At 3 <sup>rd</sup> component	Cumulative % exceeds 50% At 3 <sup>d</sup> component	Components		3 Components	
		1      1.743				3	Q1	Q1- Assurance, Courtesy	
		2      1.707					Q2	Q2- Reliability, Responsiveness	
		3      1.067					Q3	Q3- Empathy, Tangibility, Accessibility	
“Relevancy of IT component” [IT]	Grater than [01[one]	Components	Cumulative % exceeds 50% At 1 <sup>st</sup> component	Cumulative % exceeds 50 % At 1 <sup>st</sup> component	No need	Components		1 Component	
		1      8.834				1	IT	IT	
“Relevancy of English Component” [English]	Grater than 01[one]	Components	Cumulative % exceeds 50% At 1 <sup>st</sup> component.	Cumulative % exceeds 50 % At 1 <sup>st</sup> component	No need	Components		1 Component	
		1      2.555				1	English	English	
		2      1.120							
Managers Involvement for Design & Development of VT Programs [MI]	Grater than 01 [one]	Components	Cumulative % exceeds 50% At 2 <sup>nd</sup> component	Cumulative % exceeds 50 % At 2 <sup>nd</sup> component	Cumulative % exceeds 50 % At 2 <sup>nd</sup> component	Components		2 Components	
		1      1.451				2	MI-1	MI-1    Product Driven Development of Skills Employability Focus	
		2      2.181					MI-2		MI-2    Acquire Knowledge

The newly identified variables from the outcome of the Factor Analysis have been further analyzed using Correlation Analysis.

#### 4.3.4: Correlation Analysis

The Correlation Analysis was carried out using the Pearson Correlation factor [“r”- Single Correlation]  $[-1 < r < +1]$  as a tool to see the significant among each sub variables. Table 4.36 shows the 2- tailed significant at the 0.01 [1%] levels in the form of bi-variant relationship.

**Table 4.36: Correlations**

		Employability	Quality-1	Quality-2	Quality-3	IT	English	Manager Involvement-1	Manager Involvement-2
Employability	Pearson Correlation Sig. (2-tailed)	1	.829(**)	.054	-.036	.834(**)	.617(**)	.072	-.124
	N	48	48	48	48	48	48	48	48
Quality-1	Pearson Correlation Sig. (2-tailed)	.829(**)	1	.000	.000	.808(**)	.669(**)	-.247	-.047
	N	48	48	48	48	48	48	48	48
Quality-2	Pearson Correlation Sig. (2-tailed)	.054	.000	1	.000	.132	.304	.250	-.042
	N	48	48	48	48	48	48	48	48
Quality-3	Pearson Correlation Sig. (2-tailed)	-.036	.000	.000	1	.066	.052	-.465(**)	.203
	N	48	48	48	48	48	48	48	48
IT	Pearson Correlation Sig. (2-tailed)	.834(**)	.808(**)	.132	.066	1	.718(**)	-.042	.026
	N	48	48	48	48	48	48	48	48
English	Pearson Correlation Sig. (2-tailed)	.617(**)	.669(**)	.304	.052	.718(**)	1	-.084	.022
	N	48	48	48	48	48	48	48	48
Manager Involvement-1	Pearson Correlation Sig. (2-tailed)	.072	-.247	.250	-.465(**)	-.042	-.084	1	.000
	N	48	48	48	48	48	48	48	48
Manager Involvement-2	Pearson Correlation Sig. (2-tailed)	-.124	-.047	-.042	.203	.026	.022	.000	1
	N	48	48	48	48	48	48	48	48

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

\* Correlation is significant at the 0.05 level (2-tailed).

## Summary of Correlation Analysis

Researcher was able to summarize only the positively correlated relationships of bi-variant at 5% [0.05] significant level as follows and it shows the multiple correlation models.

	Employability	Q1	Q2	Q3	IT	English	MI-1	MI-2
Employability	-	Significant	-	-	Significant	Significant	-	-
Q1	Significant	-	-	-	Significant	Significant	-	-
Q2	-	-	-	-	-	-	-	-
Q3	-	-	-	-	-	-	-	-
IT	Significant	Significant	-	-	-	Significant	-	-
English	Significant	Significant	-	-	Significant	-	-	-
MI-1	-	-	-	-	-	-	-	-
MI-2	-	-	-	-	-	-	-	-
Positively Correlation on bi-variate relationship using the Pearson Correlation tool at 5% significant level.								

### 4.3.5: Regression Analysis

Regression Analysis was carried out, to see how strongly variables are associated?

**Table 4.37**  
Variables Entered/Removed (a)

Model	Variables Entered	Variables Removed	Method
1	IT	-	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Quality-1	-	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	Manager Involvement-1	-	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a). Dependent Variable: Employability

**Table 4.38**  
**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834(a)	.695	.686	.388
2	.874(b)	.764	.749	.347
3	.901(c)	.811	.792	.316

a Predictors: (Constant), IT

b Predictors: (Constant), IT, Quality-1

c Predictors: (Constant), IT, Quality-1, Manager Involvement-1

**R - Multiple Coefficients Of Correlation**

**R Square - Multiple Coefficient of Determination**

**Table 4.39**  
**ANOVA (d)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.663	1	10.663	70.773	.000(a)
	Residual	4.671	31	.151		
	Total	15.333	32			
2	Regression	11.719	2	5.859	48.630	.000(b)
	Residual	3.615	30	.120		
	Total	15.333	32			
3	Regression	12.442	3	4.147	41.596	.000(c)
	Residual	2.891	29	.100		
	Total	15.333	32			

a. Predictors: (Constant), IT

b. Predictors: (Constant), IT, Quality-1

c. Predictors: (Constant), IT, Quality-1, Manager Involvement-1

d. Dependent Variable: Employability

**Table 4.40**  
**Coefficients (a)**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.333	.068		49.333	.000
	IT	.577	.069	.834	8.413	.000
2	(Constant)	3.333	.060		55.165	.000
	IT	.328	.104	.473	3.144	.004
	Quality-1	.309	.104	.446	2.960	.006
3	(Constant)	3.333	.055		60.643	.000
	IT	.255	.099	.368	2.582	.015
	Quality-1	.407	.102	.589	4.007	.000
	Manager Involvement-1	.161	.060	.233	2.693	.012

a). Dependent Variable: Employability

**Table 4.41**  
**Excluded Variables (d)**

Model		Beta In	t	Sig.	Partial Correlation	Co linearity Statistics
1	Quality-1	.446(a)	2.960	.006	.475	.346
	Quality-2	-.057(a)	-.565	.576	-.103	.983
	Quality-3	-.092(a)	-.920	.365	-.166	.996
	English	.037(a)	.259	.797	.047	.485
	Manager Involvement-1	.108(a)	1.091	.284	.195	.998
	Manager Involvement-2	-.146(a)	-1.500	.144	-.264	.999
2	Quality-2	-.009(b)	-.096	.924	-.018	.949
	Quality-3	-.068(b)	-.759	.454	-.140	.987
	English	-.046(b)	-.351	.728	-.065	.462
	Manager Involvement-1	.233(b)	2.693	.012	.447	.868
	Manager Involvement-2	-.117(b)	-1.331	.194	-.240	.986
3	Quality-2	-.058(c)	-.679	.503	-.127	.908
	Quality-3	.068(c)	.701	.489	.131	.706
	English	-.047(c)	-.392	.698	-.074	.462
	Manager Involvement-2	-.108(c)	-1.347	.189	-.247	.984

a Predictors in the Model: (Constant), IT

b Predictors in the Model: (Constant), IT, Quality-1

c Predictors in the Model: (Constant), IT, Quality-1, Manager Involvement-1

d Dependent Variable: Employability

## Summary of Regression Analysis

Analysis indicated that the Dependent variable - Employability was **best fit** with the **“Model -3”** [table 4.38 &4.40].

The independent variables of the regression for the Model – 3 are as follows,

**[1] IT- [Sub variables-Knowledge, Understanding, Applicability, Analytical Skills, Synthesis Skills]**

**[2] Quality-1 [Sub Variables-Assurance, Courtesy]**

**[3] Management Involvement-1 [Sub Variables - Product Driven, Development of Skills, Employability Focus]**

Having considered the highest important effect, which directly influence the employability, it was found that 81.1% variation of the employability has been explained by the variables in the Regression **“Model –3”** [table 4.38 & 4.40] and 18.9% variation has not been explained by the variables of the Regression, thus unknown factors had influenced 18.9% to the Dependent variable, which is Employability.

## Chapter Five

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

This chapter attempts to conclude the research evidence by which the researcher made upon the research findings in the preceding chapters for which to find causations between the degree of **employability in the world of work** with **quality** and **relevance** upon the **design and development of vocational training programs** conducted by Vocational Training Authority of Sri Lanka.

Conclusion and Recommendations which are presented here were based on the statistical analysis as presented in the 4<sup>th</sup> chapter taking into the consideration of the strength of the factors of the independent variables such as **Quality** and **Relevance** upon **Design and Development of Vocational Training Programs** towards the dependent variable of **Employability**.

Thereby, the researcher intends to highlight the validity and relevancy of the factors of the independent variables to dependent variable in the predetermined **Conceptual Framework** assuming the possible explore towards the successful development of VT Programs at Vocational Training Authority of Sri Lanka within the perspective of Employability in the World of Work.

#### 5.2 CONCLUSION

**1.0** As per the **Findings of Descriptive Statistics Analysis** that,

**1.1** The level of the satisfaction of the VT Programs in the context of employability which was the dependent variable was 3.31 on likert scale value to the standard deviation of 0.719 making coefficient of variation to 0.517 [**Refer Table 4.6**], which illustrated that VT programs upon the employability perspectives had been at the **average satisfied level** as per the overall view of the Industry Sector managers [**Refer 4.3.1.1**]

**1.2** Standard deviation of the “**Communication**” factor of the independent variable of **Quality of Programs** was zero [Refer Table 4.7]. Furthermore, the standard deviation of **Employability Centric** factor of the independent variable of Managers involvement in **Design and Development of VT programs** was also zero [Refer Table 4.10] Thus, those Factors did not act as variables. They were acted as constants.

Thereby, the **Communication** factor as well **Employability Centric** factor were not allied into the Factor Analysis. So, the Factor Analysis was carried out for the **Quality of Programs** and **Design and Development of VT programs** without the **Communication** factor [Refer Table 4.19] and the **Employability Centric** factor respectively [Refer Table 4.30]

**2.0** As per the findings of the **Reliability Analysis**,

**2.1** The **Employability** - dependent variable in the conceptual framework has no sub variables and hence found that the Reliability Analysis was not appropriate to the employment variable.

**2.2** The Cronbach’s Alpha values of two Independent Variables out of four, in the Conceptual Frame Work, namely

a] **Quality of Programs**

b] **Managerial Involvement in Design & Development of VT Programs**

were less than the researcher assumed **reliability standard of 0.7 value** [Table 4.12 & Table 4.18]. Thereby it is not reliable to consider the “**Quality of Programs**” and **Managerial Involvement in Design & Development of VT Programs**” as two absolute independent variables, since all the respective sub variables of each of these two Independent Variables do not consistence as intact. That is seven sub variables out of eight of “**Quality of Programs**” and four sub variables out of five of “**Managerial Involvement in Design & Development of VT Programs**” do not consistence as intact

However, the other two independent variables namely,

c] **Relevancy of Information of Technology**

d] **Relevancy of English**

were reliable to consider as absolute independent variables since the Cronbach’s Alpha values of these independent variables were greater than the researcher assumed reliability standard value of 0.7 value [Refer Table 4.14 & Table 4.16]. Thereby all the respective sub variables [five sub variables out of five of “**Relevancy of Information of Technology**” variable and five sub variables out of five of “**Relevancy of English**” variable] do consistence as intact.



### 3.0 As per the findings of the **Factor Analysis**,

It was found that, the unreliable Independent Variables such as

#### **A] Quality of Programs**

**B] Managerial Involvement in Design & Development of VT Programs** could have been become reliable and consistence on the following five considerations,

- 1] If the “**Assurance**” & “**Courtesy**” factors were only considered under the Independent Variable, which was known as **Quality of Programs**.

Thereby it was found that Independent Variable, hereby now denoted by “**Q**”, that is **Quality of programs**; would become reliable and consistence with the factors of “**Assurance**” & “**Courtesy**” [Refer Table 4.22].

Thereby Independent Variable denoted by **Q** with the factors “**Assurance**” & “**Courtesy**” should be considered as, **Q1- Assurance & Courtesy** [Refer Table 4.35]

- 2] If the “**Reliability**” & “**Responsiveness**” factors were only considered under the Independent Variable, which was known as **Quality of Programs**.

Thereby it was found that Independent Variable, hereby now denoted by “**Q**” that is **Quality of Programs**; would become reliable and consistence with the factors of “**Reliability**” & “**Responsiveness**” [Refer Table 4.22].

Thereby Independent Variable denoted by **Q** with the factors of “**Reliability**” & “**Responsiveness**” should be considered as, **Q2- Reliability & Responsiveness** [Refer Table 4.35]

- 3] If the “**Empathy**”, “**Tangibility**” & “**Accessibility**” factors were only considered under the Independent Variable, which was known as **Quality of Programs**.

Thereby it was found that Independent Variable hereby now denoted by “**Q**” that is **Quality of Programs**, would become reliable and consistence with the factors of “**Empathy**”, “**Tangibility**” & “**Accessibility**” [Refer Table 4.22].

Thereby Independent Variable denoted by **Q** with the factors of “**Empathy**”, “**Tangibility**” and “**Accessibility**” should be considered as, **Q3-Empathy, Tangibility & Accessibility** [Refer Table 4.35]

4] If the “**Product Driven**”, “**Development of Skills**”, “**Employability Focus**” factors were only considered in the Independent Variable, which was known as **Managerial Involvement in Design & Development of VT Programs**.

Thereby it was found that Independent Variable hereby now denoted by “**MI**” that is **Managerial Involvement in Design & Development of VT Programs**; would become reliable and consistence with the factors of “**Product Driven**”, “**Development of Skills**”, “**Employability Focus**” [Table 4.32].

Thereby, Independent Variable denoted by **MI** with the factors of “**Product Driven**”, “**Development of Skills**”, “**Employability Focus**” should be considered as **MI-1-Product Driven, Development of Skills, Employability Focus** [Refer Table 4.35]

5] If the “**Acquire Knowledge**” factor was only considered in the Independent Variable which was known as **Managerial Involvement in Design & Development of VT Programs**.

Thereby it was found that Independent Variable hereby now denoted by “**MI**” that is **Managerial Involvement in Design & Development of VT Programs**; would become reliable and consistence with the factors of “**Acquire Knowledge**”, **Employability Focus** [Refer Table 4.32]. Thereby, Independent Variable **MI** with “**Acquire Knowledge**” **Employability Focus** factors should be considered as **MI-2 -Acquire Knowledge, Employability Focus** [Refer Table 4.35]

**4.0** as per the findings of the **Correlation Analysis** with **single correlation**,

bi-variantly positive correlation was found only among the following independent variables,

1. **Assurance & Courtesy**, which was denoted by “**Q1**”,
2. “**Relevancy of Information of Technology**”,
3. “**Relevancy of English**”

And

dependent variable known as “**Employability**” [ Refer Table 4.36 ]

**5.0** as per the findings of the **Regression Analysis** with the **multiple correlations**, it was found a correlation among the variables of

1. **“Relevancy of IT [Information of Technology]”,**

2. **“Q -1”**

3. **“MI -1”**

and

dependent variable known as **“ Employability” include.**[Refer Tables 4.38 & Table 4.40].

All other variables should be excluded [Refer Table 4.41].

Thereby Analysis indicated that the Dependent variable - **Employability** was found best fitted with the independent variables of **“Relevancy of Information of Technology”, “Q1”** and **“MI 1”**. [Refer **Model – 3** in the Table 4.41].

Furthermore, the sub variables of the aforementioned independent variables of the **Model –3** as per the Factor Analysis are as follows,

[1] **Relevancy of Information of Technology:** Knowledge, Understanding, Applicability,  
Analytical Skills, Synthesis Skills

[2] **Q-1:** Assurance, Courtesy

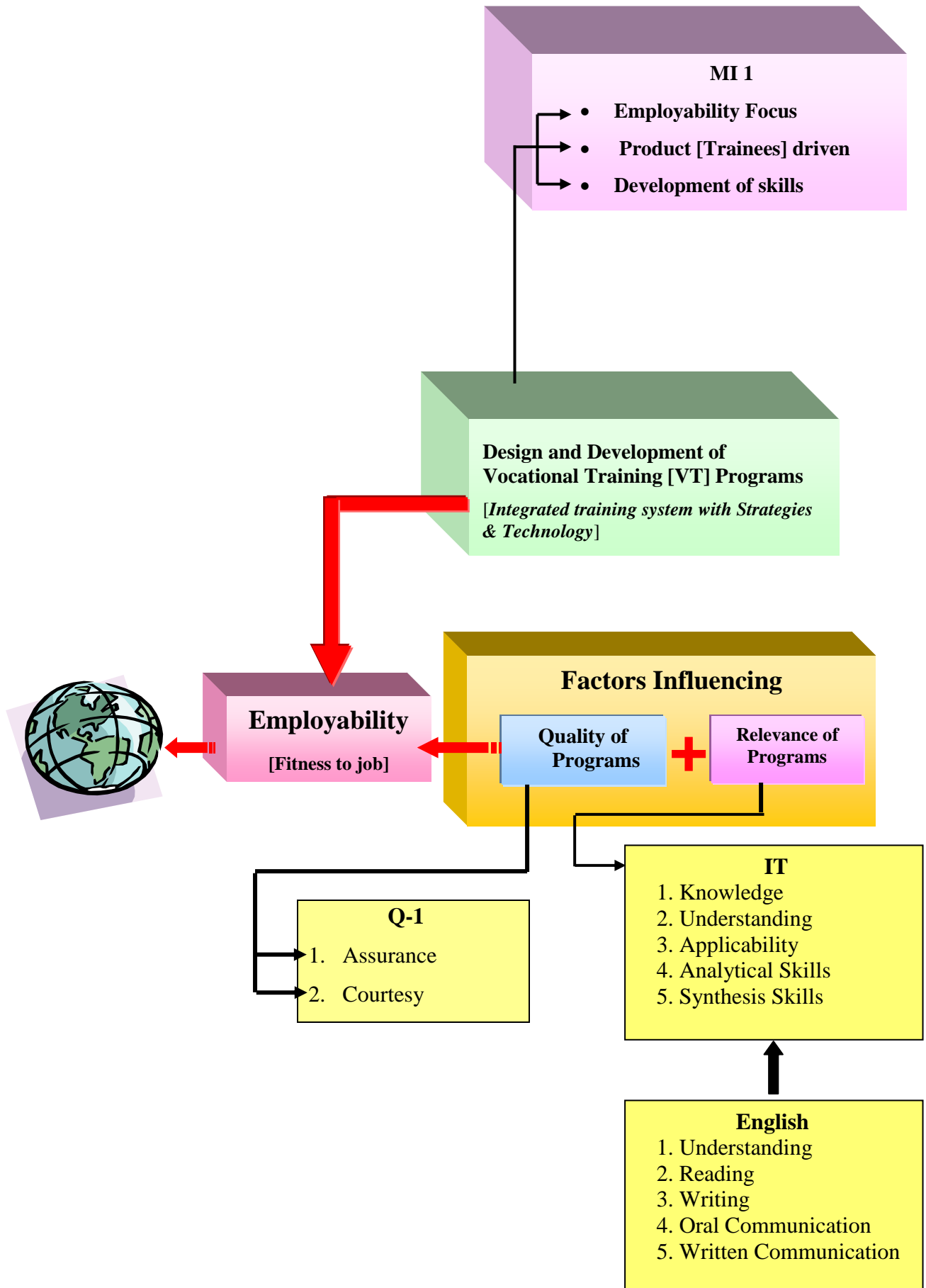
[3] **MI-1:** Product Driven, Development of Skills, Employability Focus

Having considered the highest significance of above variables, which were directly influenced the employability, was found that 81.1% variation of the employability has been contributed by the variables in the Regression “Model –3” [Refer Table 4.38]. This was concluded accordance to the views and opinion of the respondents. Consequently [100% - 81.1%] =18.9% variations had not been contributed by the variables of the Regression, thus unknown factors had been influenced up to 18.9% to the Employability; Dependent variable.

In this situation, the Relevancy of English had not been influenced directly to the Employability; but it had been influenced to the **Information of Technology** indirectly, thereby to the Employability. This was due to the positive correlation of **Information of Technology** variables with Employability. [Refer 4.3.4]

In compliance with the findings mentioned above, the outcome of the present research, which was based on the conceptual framework deemed in the 2<sup>nd</sup> chapter, now should be modified as given below.

## Modified Concept



In this context, neither the hypothesis had been fully satisfied nor did it fully reject. Hypothesis had been only partially satisfied.

**Accordingly, the following concludary statements were presented on the present research.**

1. Manager Involvement in “Design & Development of VT Programs” were found not capable enough to make high employability in the world of work, due to insufficient and less emphasis been given to the factors such as **“Development of Skills” & “Product Driven” & “Employability Focus”**, and hence which led to make less employment opportunities. Hereby **Development of Skills** refers to the practical aspects of the World of Work and **Product Driven** and **Employability Focus** refers to the conceptual part of the Vocational Training Programs. Study revealed that designers should be given their deeper conscious to those areas in which programs to be unsuccessful.

2. Findings indicated that, to improve the **quality of programs** emphasis to be given to the factors such as **Assurance, Courtesy** as these been caused to problems in the world of work as it was found those are significant areas as far as employment are concerned. Thereby, Managers Involve in “Design & Development of VT Programs” should be given their deeper emphasis to these areas when designing the programs, since higher assurance with polite behaviors of personnel, make higher validity about the VT programs.

Study concludes that the managers who design and develop programs for the future must pay their deeper attention to those areas in order to develop such characteristics through the course of the content of the program by which the participants should be responsive and able to keep assure, thus there employability would be better. And hence VT programs would be able get good accessibility into the employment opportunities in the world of work.

3. Study further revealed that the factors in connection with the “Relevancy of Information Technology” was at average satisfied level, in which the research evident indicated that the managers involvement in Design & Development of VT Programs had not been given sufficient consideration to incorporate the Information of Technology component to VT programs to provide the IT skills and IT knowledge to the personnel for employability. Therefore it was found that there was a lapsed part of such VT programs.

The considerable amount of knowledge and skills on Information of Technology of any potential employees have been found important for employability.

Thereby, it suggested that Program development managers must give grater emphasis and must attempt to incorporate the Information of Technology to future VT programs appropriately.

4. As far as the employability is concerned, knowledge of English for job seekers is equally essential and given suitable considerable effort to enhance the English skills of potentiality at the VT programs by the program designers will be a boon no in small measure specially for the job seekers of the International Market.

#### **5.2.1. BIRD EYE POINT OF VIEW.**

- It was found that, degree of Employability placement upon VT programs followers are relatively low.
- Study also found that, the VT Sector should be given more attention to the employability aspect” such as “Product Driven” “Employability Focus” and Development of Skills when Design & Development of VT Programs.
- Also the study reveled that the present strategies used by the managers of VT sector to be looked into inclusion of information technology component to the VT Programs as it was found relevant to cope up with the advancement of the technology within the perspectives of globalization aspects. Thereby relevance of English becomes self-actuated.

### 5.3 RECOMMENDATIONS

Proper implementation of VT Programs proceeds well with the employability aspect in the changing environment of the world of work.

It was found that the key successes of VT Programs depend upon quality aspects as well as relevance aspects of such programs on employability. As the majority of respondents have indicated, researcher likes to emphasize that proper implementation of VT programs are essential and some of programs must be proceed well with employability aspects and such programs should be designed to cope up with changing environment, especially, with the external environment where concurrent changes rapidly taking place with the Technology advancements in global aspect.

As it was evident that the success of VT programs with “quality” and “Relevance also depend on potential candidates. Therefore behavioral aspect, English and IT knowledge should be improved and emphasized at the place of training.

When design and development of VT programs, it is recommended that management should provide quality VT programs as to make well-made products looking out of the window without looking into the mirror while focusing what customer needs but not focusing undue consideration on product. In short, find wants and fill them within the quality aspects of products.

Furthermore, researcher wishes to give following recommendations upon the findings.

- Programs must be reviewed periodically. Subsequently, identify the apparent shortcomings and Weaknesses.
- VT programs must be designed such a way that English knowledge and IT knowledge of potential candidates has to be improved.
- Managers who are involving in designing of VT programs should look at the employment avenues first, and then design such programs accordingly.
- Information Technology component found influenced the VT programs, thus incorporate sufficient amount into the programs with sufficient time involvement which could increase the relevance of programs

In this Context, the up to date training methodologies have to be implemented appropriately in view of facing the globalization aspects.

Various strategies, which are needed as concluded above, should be implemented accordingly.

Furthermore, it is recommended that due attention should to be paid to the planning of the future

procurement of human resources at the recruitment, selection and placement for the best capable trainers those who plays a vital role in conducting VT Programs effectively, since the Quality of VT Programs are found less influenced the employability aspects to a satisfactory level, because determinant of success or failure depend upon the inertia or dynamism of the trainers hands.

Furthermore, It was evident that the existing employees who are involving in design & developments of VT programs playing an important role, therefore program for regular upgrading their knowledge and skills also found very much essential, because the factors influenced the quality of VT Programs with modern technologies within the globalization aspects are depend on the conceptual abilities of them.

Changing management process, reengineering the task process are hereby found essential as other strategies which may be used appropriately in redesigning and restructuring of VT programs.

Finally it is concluded here that, relevancy of Information Technology and English were found somewhat significant, thus necessary action must be taken to upgrade VT Programs which was found largely influenced the employability aspect within the concept of World of Work.





## VOCATIONAL TRAINING AUTHORITY OF SRI LANKA

Study on **Impact assessment of Quality & Relevancy factors on Vocational Training Programs for employability.**  
 [Special reference: Vocational Training Authority of Sri Lanka (VTA)]

❖ [Mark ✓ in relevant cage]

- Q1. VT programs influence the **employability** - [Fitness to job] in the world of work.  
**Overall**, I am satisfied with the VT programs toward the employability.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q2.

- 2.1 Do you believe that such training programs offered by VTA, had focused on **accurate performance** at the employments, thereby VT programs would influence the employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- 2.1.1 Do you believe that such training programs offered by VTA has to be designed to have a **trust** on the programs for productivity, thereby it would influence the employability in the world of work.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- 2.2 Do you believe that such training programs offered by VTA have been designed to have a **trust** on the programs for productivity. Thereby it would influence the employability in the world of work

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q3. Do you believe that, VT Training programs guided **prompt attention** at the activities of the employments; thereby VT Training programs would influence the employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q4. Do you believe that, Training programs guided **reaction to unusual situations** arose at the employments, thereby would influence for the employability.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q5. Do you believe that, VT training programs helped **performance speed** at work, thereby would influence VT recipient's employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q6. Do you believe that, VT training programs guided VT recipients to **identify & understand** the work at the employments, thereby would influence employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q7. Do you believe that, VT training programs guided for **tangibility** [appearance of physical elements] of outputs thereby would influence employability to VT programs?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q8. Do you believe that, VT training programs directed **neatness** at the performance and the outputs, thereby VT training programs would influence employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q9. Do you believe that, VT training programs provided **knowledge and skills** [competency] needed at employments, thereby VT training programs would influence employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q10. How would you **recommend** VT programs to others?

Strongly Recommend	Recommend	Neutral	Not Recommend	Not Recommend at all

Q11. Do you believe that, VT programs provided **easy access** [understanding] of employments thereby VT training programs would influence the employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q12. Do you believe that, VT programs helped; its followers, to pay **an attention on the assigned duties** at the employments, thereby would influence the employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q13. Do you believe that, VT programs guided the followers to have a **patience listening trait** towards the Instructions and etc, which would influence the VT programs for employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q14. Do you believe that, VT programs guided to give feedback on the assign duties by the trainees to the relevant authorities, which would influence the VT programs for employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q15. Do you believe that, VT programs guided to behave **polite** manner at the employments, which influence employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q16. Do you believe that, VT programs led to **disciplinary behavior** at the employments, which would influence employability?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Q 17 - Q 26 It was found that, “higher the relevancy of VT training programs larger the employability [Fitness to job]” in the “World of Work”, thereby do you believe that, the following factors influence the VT programs for employability

Factors	Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed
IT Knowledge					
IT Understanding					
IT Applicability					
IT Analytical Skills					
IT Synthesis Skills					
English Understanding					
English Reading					
English Writing					
English Oral Communication					
English Written Communication					



## VOCATIONAL TRAINING AUTHORITY OF SRI LANKA

### Study on Impact assessment of Quality & Relevancy factors on Vocational Training Programs for employability. [Special reference: Vocational Training Authority of Sri Lanka (VTA)]

❖ [Mark ✓ in relevant cage]

- Q1. Do you believe that manager should focus to the contents of such Training programs towards the employability potential in the world of work?

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q2. VT trainees of past several years [VT program followers] were placed in the employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q3. In the fields, where the employment opportunities were available, most of the trainees [VT program followers] were placed in employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q4. In the fields, where the employment opportunities were available, some of the trainees [VT program followers] were placed in employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q5. In the fields, where the employment opportunities were **not** readily available, most of the trainees [VT program followers] were placed in employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q6. In the fields, where the employment opportunities were **not** readily available, some of the trainees [VT program followers] were placed in employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q7. Trainees [VT program followers], has the required skills to work in the relevant field of Employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q8. Trainees [VT program followers] need to under go further training to obtain required skills to work in the relevant field of Employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q9. Trainees [VT program followers], has the required knowledge to work in the relevant field of Employments.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q10. Trainees [VT program followers], require more knowledge to work in the world of work.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q11. Trainees [VT program followers], have confidant at the employment when employed.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

- Q12. Trainees [VT program followers], have an ability to perform in the employment.

Strongly Agreed	Agreed	Neutral	Disagreed	Strongly Disagreed

Master Data Sheet No 2 - [Excel File]																																								
Views & Opinions of Industry Sector Manager's upon Quality of programs & Relevancy of programs towards the employability																																								
Catogory		Quality of Programs towards the Employability																						Relevancy of Programs towards thethe Employability																
																								Information Technology [IT]					English											
Industry Sector Managers [IM]		Overall View of VT programs towards Employability [fitness to job]	Highest	Lowest	Marks Obtained	%	Reliability	Responsiveness	Empathy	Tangibility	Assurance	Accessibility	Communication	Courtesy	Highest	Lowest	Marks Obtained	%	IT Knowledge	IT Understanding	IT Applicability	IT Analytical Skills	IT Synthesis Skills	Understanding	Reading	Writing	Oral Communication	Written Communication	Highest	Lowest	Marks Obtained	%								
Areas & Name Codes [Cd] of VT Programs		Q1					Q2.1	Q2.2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16					Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26				
Area	Cd																																							
1	1.1	4	5	1	4	80%	5	4	4	3	3	4	4	4	4	4	3	4	3	2	3	3	80	16	57	71%	3	3	2	2	1	4	4	3	4	2	50	10	28	56%
	1.2	4	5	1	4	80%	3	4	4	3	3	4	3	3	4	4	3	4	3	2	3	3	80	16	53	66%	3	3	2	2	1	4	4	3	4	2	50	10	28	56%
	1.3	4	5	1	4	80%	5	4	4	3	3	4	3	4	4	4	3	4	3	2	3	3	80	16	56	70%	3	3	2	2	1	4	4	3	4	2	50	10	28	56%
	1.4	4	5	1	4	80%	3	4	4	3	3	4	3	3	4	4	3	4	3	2	3	3	80	16	53	66%	3	3	2	2	1	4	4	3	4	2	50	10	28	56%
2	2.1	4	5	1	4	80%	4	4	4	3	3	4	3	4	3	3	3	3	2	3	4	80	16	53	66%	4	4	4	2	1	4	4	3	4	3	50	10	33	66%	
	2.2	3	5	1	3	60%	3	2	4	2	2	4	2	4	3	4	3	3	2	3	3	80	16	47	59%	3	3	2	2	1	4	4	3	4	3	50	10	29	58%	
	2.3	4	5	1	4	80%	4	4	4	3	3	4	3	4	3	4	3	4	3	2	3	3	80	16	54	68%	3	2	2	2	1	4	4	3	4	3	50	10	28	56%
	2.4	4	5	1	4	80%	4	4	4	3	3	4	3	4	3	4	3	3	2	3	3	80	16	53	66%	4	4	4	2	1	4	4	3	4	3	50	10	33	66%	
	2.5	4	5	1	4	80%	3	4	4	3	3	4	3	4	3	4	3	3	2	3	3	80	16	52	65%	2	4	2	1	1	4	4	3	4	3	50	10	28	56%	
3	3.1	3	5	1	3	60%	4	4	4	3	4	4	3	4	3	4	3	3	2	3	3	80	16	54	68%	4	4	4	2	2	4	4	4	4	4	50	10	36	72%	
	3.2	4	5	1	4	80%	4	4	4	3	4	4	4	4	3	4	3	3	2	3	3	80	16	55	69%	4	4	4	3	2	5	4	4	4	4	50	10	38	76%	
	3.3	3	5	1	3	60%	4	4	4	3	4	4	4	4	3	4	3	3	2	3	3	80	16	55	69%	3	2	2	2	1	4	4	3	4	3	50	10	28	56%	
	3.4	4	5	1	4	80%	4	4	4	3	4	4	4	4	3	4	3	3	2	3	3	80	16	55	69%	4	4	4	3	2	5	4	4	4	4	50	10	38	76%	
4	4.1	4	5	1	4	80%	4	4	4	3	3	4	4	4	3	4	3	4	3	2	3	3	80	16	55	69%	3	5	4	4	2	5	5	4	4	3	50	10	39	78%
	4.2	4	5	1	4	80%	4	4	4	3	3	4	4	4	3	4	3	4	3	2	3	3	80	16	55	69%	4	5	4	4	2	5	5	4	4	3	50	10	40	80%
5	5.1	3	5	1	3	60%	4	4	4	4	3	4	4	4	3	4	3	4	3	2	4	4	80	16	58	73%	5	5	5	4	3	5	5	4	4	4	50	10	44	88%
	5.2	4	5	1	4	80%	4	4	4	4	3	4	4	4	3	4	3	4	3	2	3	3	80	16	56	70%	4	5	4	4	2	5	5	4	4	3	50	10	40	80%
	5.3	3	5	1	3	60%	4	4	4	4	3	4	4	4	3	4	3	4	3	2	3	3	80	16	56	70%	5	3	5	4	4	5	5	4	4	4	50	10	43	86%
6	6.1	4	5	1	4	80%	3	3	4	2	3	4	3	4	3	4	3	4	3	2	3	3	80	16	51	64%	4	5	4	4	2	5	5	4	4	3	50	10	40	80%
	6.2	4	5	1	4	80%	4	3	4	2	3	4	3	4	3	4	3	4	3	2	3	3	80	16	52	65%	3	5	3	2	1	4	4	3	4	2	50	10	31	62%
7	7.1	3	5	1	3	60%	3	4	4	3	3	4	3	4	3	4	3	4	3	2	3	3	80	16	53	66%	5	3	5	4	4	5	5	4	4	4	50	10	43	86%
	7.2	4	5	1	4	80%	3	4	4	3	3	4	3	4	3	4	3	4	3	2	3	3	80	16	53	66%	5	3	5	4	4	4	4	3	4	3	50	10	39	78%
8	8.1	3	5	1	3	60%	3	3	4	2	3	4	3	4	3	4	3	4	3	2	3	3	80	16	51	64%	4	5	4	4	2	5	5	4	4	3	50	10	40	80%
	8.2	4	5	1	4	80%	3	3	4	2	3	4	3	4	3	4	3	4	3	2	3	3	80	16	51	64%	3		3	2	1	4	4	3	4	2	50	10	26	52%
9	9.1	3	5	1	3	60%	3	4	4	3	3	4	4	4	3	4	3	3	2	3	3	80	16	53	66%	3	3	3	2	2	4	4	3	4	3	50	10	31	62%	
	9.2	4	5	1	4	80%	4	3	4	3	4	4	4	4	3	4	3	3	2	3	3	80	16	54	68%	3	3	3	2	2	4	4	4	4	3	50	10	32	64%	
	9.3	4	5	1	4	80%	4	3	4	3	3	4	4	4	3	4	3	3	2	3	3	80	16	53	66%	3	3	3	2	2	4	4	3	3	2	50	10	29	58%	
10	10.1	3	5	1	3	60%	4	4	4	3	3	4	4	4	3	4	3	3	2	3	3	80	16	54	68%	3	3	3	2	2	4	4	3	3	2	50	10	29	58%	
	10.2	3	5	1	3	60%	4	4	4	3	3	4	4	4	3	4	3	3	2	3	3	80	16	54	68%	3	3	3	2	2	4	4	3	3	2	50	10			

15	15.1	2	5	1	2	40%	4	4	4	3	3	4	3	4	3	4	3	4	3	2	3	3	80	16	54	68%	4	4	4	3	3	4	4	4	4	4	50	10	38	76%
16	16.1	3	5	1	3	60%	4	4	4	4	3	4	3	3	3	4	3	3	3	2	3	3	80	16	53	66%	4	4	4	3	3	4	4	4	4	4	50	10	38	76%
	16.2	2	5	1	2	40%	4	4	4	4	3	4	3	3	3	4	3	3	3	2	3	3	80	16	53	66%	2	2	2	1	1	4	4	4	4	2	50	10	26	52%
17	17.1	3	5	1	3	60%	4	4	4	3	3	4	4	4	3	4	3	4	3	2	3	3	80	16	55	69%	2	2	2	2	2	4	4	4	4	2	50	10	28	56%
18	18.1	2	5	1	2	40%	3	4	4	3	3	4	3	3	3	3	3	4	3	2	4	4	80	16	53	66%	4	4	4	3	3	4	4	4	5	4	50	10	39	78%
	18.2	3	5	1	3	60%	4	4	4	3	3	4	4	4	3	4	3	4	3	2	3	3	80	16	55	69%	4	4	4	3	3	4	4	4	4	3	50	10	37	74%
		159			159		179	184	192	147	148	192	165	187	148	190	144	167	144	96	146	147			2576		158	157	151	118	89	202	200	170	188	131			1564	



Views & Opinions of VT Sector Manager's upon Quality of programs & Relevancy of programs towards the employability																	
Category		VT Sector Managers Involvement for VT Programs															
VT Sector Managers [VTM]		Employability Centric	Product [Trainee] driven					Development of Skills		Acquire Knowledge		Employability Focus		Highest	Lowest	Marks Obtained	%
Areas & Name codes of VT Programs		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12				
Area	Cd																
1	1.1	5	4	4	5	4	4	4	4	4	4	3	4	60	12	49	
	1.2	5	4	4	5	3	4	4	4	4	4	3	4	60	12	48	
	1.3	5	4	4	5	3	4	4	4	4	4	3	4	60	12	48	
	1.4	5	4	4	5	3	4	4	4	4	4	3	4	60	12	48	
2	2.1	5	4	3	4	4	4	4	4	4	4	3	4	60	12	47	
	2.2	5	4	4	3	3	4	4	4	4	4	3	4	60	12	46	
	2.3	5	3	4	3	4	4	4	4	4	3	4	4	60	12	46	
	2.4	5	4	4	4	4	4	4	4	4	4	3	4	60	12	48	
	2.5	5	4	4	4	4	4	4	4	4	4	3	4	60	12	48	
3	3.1	5	4	3	4	3	4	4	4	4	4	3	4	60	12	46	
	3.2	5	4	4	4	4	4	4	4	4	4	4	4	60	12	49	
	3.3	5	4	3	4	3	4	4	4	4	4	3	4	60	12	46	
	3.4	5	4	4	4	4	4	4	4	4	4	4	4	60	12	49	
4	4.1	5	4	4	4	3	4	4	4	4	4	3	4	60	12	47	
	4.2	5	4	4	4	3	4	4	4	4	4	3	4	60	12	47	
5	5.1	5	4	3	3	3	4	4	4	4	4	4	4	60	12	46	
	5.2	5	4	4	4	3	4	4	4	4	4	4	4	60	12	48	
	5.3	5	4	4	4	3	4	4	4	4	4	4	4	60	12	48	
6	6.1	5	4	3	3	3	4	4	4	4	4	4	4	60	12	46	
	6.2	5	4	4	3	3	4	4	4	4	4	4	4	60	12	47	
7	7.1	5	4	4	4	4	4	4	5	4	4	4	4	60	12	50	
	7.2	5	4	3	4	4	4	4	5	4	4	4	4	60	12	49	
8	8.1	5	4	3	3	3	4	4	4	4	4	4	4	60	12	46	
	8.2	5	4	4	3	3	4	4	4	4	4	4	4	60	12	47	
9	9.1	5	4	4	4	3	4	4	4	4	4	4	4	60	12	48	
	9.2	5	4	5	5	4	4	4	3	5	3	4	4	60	12	50	
	9.3	5	4	4	5	4	4	4	3	5	3	4	4	60	12	49	
10	10.1	5	4	4	4	3	4	4	3	5	3	3	4	60	12	46	
	10.2	5	4	3	3	3	4	4	3	5	3	4	4	60	12	45	
11	11.1	5	4	4	4	4	4	4	4	5	3	4	4	60	12	49	
	11.2	5	4	4	5	4	4	4	4	5	3	4	4	60	12	50	
	11.3	5	4	4	5	4	3	4	4	5	3	4	4	60	12	49	
12	12.1	5	4	3	3	3	4	4	4	5	3	4	4	60	12	46	
	12.2	5	4	4	3	3	4	4	4	5	3	4	4	60	12	47	
13	13.1	5	4	2	3	3	4	4	4	5	3	4	4	60	12	45	
	13.2	5	4	3	3	3	4	4	4	5	5	4	4	60	12	48	
	13.3	5	4	3	4	3	4	4	4	5	5	4	4	60	12	49	
14	14.1	5	4	4	5	4	4	4	4	5	4	4	4	60	12	51	
	14.2	5	4	2	3	3	4	4	4	5	5	4	4	60	12	47	
	14.3	5	4	4	4	4	4	4	3	5	4	4	4	60	12	49	
	14.4	5	3	4	4	4	4	4	3	5	4	4	4	60	12	48	
	14.5	5	4	4	4	4	4	4	3	5	4	4	4	60	12	49	
15	15.1	5	4	3	3	3	3	3	3	5	5	4	4	60	12	45	
16	16.1	5	4	3	3	3	4	4	4	5	4	4	4	60	12	47	
	16.2	5	4	3	3	3	4	4	4	5	4	4	4	60	12	47	
17	17.1	5	4	3	3	3	4	4	4	5	4	4	4	60	12	47	
18	18.1	5	4	3	4	3	4	3	5	5	5	3	4	60	12	48	
	18.2	5	4	4	4	3	4	4	4	4	4	4	4	60	12	48	
		240	190	173	184	162	190	190	187	214	186	178	192			2286	