



Indira Gandhi National Open University
School of Education

MES-044

INSTITUTIONAL MANAGEMENT

Cost and Budgeting

**Management of
Academic
Resources**

**Concept,
Importance
and Need**

**Strategies for
Quality
Improvement**

**Management of Student
Support System**

Total Quality Management

5

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी



“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi

Block

5

TOTAL QUALITY MANAGEMENT

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BLOCK 5 TOTAL QUALITY MANAGEMENT

Introduction

Quality management has three main components - quality control, quality assurance and quality improvement. Quality management is focused not only on quality, but also on the means to achieve quality and sustain total quality management is the organisation-wide management of quality. It consists of planning, organising, directing, controlling and assuring quality. Total quality is called total because it consists of two elements: quality of return to satisfy the needs of the stakeholders and quality of products. The Block comprises 5 units. So let us discuss in briefly as follows:

Unit 16 deals with **quality control, quality assurance and quality indicators**. Quality control is a process employed to ensure a certain level of quality in the service or process. The basic goal of quality control is to ensure that the services or processes provided meet specific requirements and are dependable satisfactorily, and fiscally sound. The quality assurance is reactive, retrospective and policing, and in many ways it is punitive. It often involves and determines as to who was at fault or what went wrong.

Unit 17 deals with **tools of management**. Here we have discussed the categories and quality of tools of management. Every tool that has been discussed here as quality tools is not an all purpose tool. Every tool has some definite function in collecting data required for some definite stages of problem solving process.

Unit 18 encompasses **strategies for quality improvement**. Quality improvement is a formal approach to the analysis of performance and systematic efforts to improve it. Quality improvement involves both prospective and retrospective strategies. It is aimed at improvement measuring where you are, and figuring out ways to make things better. It specifically attempts to avoid attributing blame, and to create systems to prevent errors from happening. Quality improvement activities can be very helpful in improving how things work. Trying to find where the 'defect' in the system is, and figuring out new ways to do things can be challenging and fun. It is a great opportunity to think the various strategies for quality improvement.

Unit 19 consists of **role of different agencies**. There are many agencies associated with assessment and accreditation of educational institutions and programmes of studies at school education, higher education, professional education and open and distance education in the country and abroad. The role of these agencies in quality context has been discussed.

The last unit i.e. 20 encompasses of **Quality Concerns and Issues for Research**. In this unit we discuss on various aspects of research in educational management and the issues related to improving quality of research in the field of educational management too. Further we elaborate the role and responsibilities of institutions acquaintance with research in the field of educational management.

MES-044 Institutional Management

Block-1 Management of Curriculum

- Unit-1 Classroom Management (Instructional Management)
 - Unit-2 Curriculum Transaction
 - Unit-3 Management of Evaluation
 - Unit-4 Management of Academic Resources
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Block-2 Management of Financial Resources

- Unit-6 Educational Finance: Meaning, Importance and Scope
 - Unit-7 Cost and Budgeting
 - Unit-8 Accounting and Auditing
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-

Block-3 Management of Human and Administrative Resources

- Unit-10 Management of Student Support System
 - Unit-11 Management of Administrative Resources
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-

Block-4 Management of Infrastructure

- Unit-13 Concept, Importance and Need of Infrastructure Management
- Unit-14 Management of Physical Resources
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Block-5 Total Quality Management

- Unit-16 Quality Control, Quality Assurance and Indicators
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- Unit-18 Strategies for Quality Improvement
- Unit-19 Role of Different Agencies
- Unit-20 Quality Concerns and Issues for Research

UNIT 16 QUALITY CONTROL, QUALITY ASSURANCE AND INDICATORS

Structure

- 16.1 Introduction
- 16.2 Objectives
- 16.3 Understanding Quality
- 16.4 Criterion of Quality
- 16.5 Dimensions of Quality
- 16.6 Facets of Quality
- 16.7 Quality Control
- 16.8 Quality Assurance
- 16.9 Quality Indicators
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 - 16.9.3 Output Indicators
 - 16.9.4 Quality vis-à-vis Accountability
- 16.10 Quality Gap
- 16.11 Total Quality Management
- 16.12 Quality Education
 - 16.12.1 The Concept of Quality Education
 - 16.12.2 Dimensions of Quality Education
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- 16.14 Let Us Sum Up
- 16.15 Unit End Activities
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- 16.17 Answers to Check Your Progress

16.1 INTRODUCTION

The term quality is commonly used these days . At the same time, it is one of the most difficult terms to understand properly. It is a perception of what one is looking for in a service or product. Therefore, it varies from person to person, situation to situation, service to service, context to context, institution to institution and so on. For example, attaining cent percent pass percentage of class X students in a school may be the quality parameter for the principal while for a mathematics teacher the quality parameter may be that all the students must attain minimum first class in secondary board examination. As we all know, the terms quality as well as its

management have been borrowed from the corporate world. In today's era of privatisation, liberalisation and globalisation education has been viewed more as an investment and a power for economic and social development than a means for the human development. Therefore our earlier belief that education is for acquiring knowledge has changed drastically. Today it is one of the prominent service sectors which need effective, efficient and systemic management for preparing students capable of facing challenges of emerging society. This is possible by providing quality education to them. In this regard we all have been confronting with queries like -

- What do we mean by quality education?
- How can we subdivide the term quality into different parts and each part can be measured independently in order to arrive at comprehensive meaning of the term.
- How to minimise the difference between the producers' claim of service standards vis-a-vis users' satisfaction levels?

There may be many more questions in your mind related to this aspect. The emergence of quality councils/bodies for school education, higher education and professional education at the national and international levels is the outcome of our concern about quality education.

In this Unit we shall familiarise you with the common terms used in managing quality in general and education in particular.

16.2 OBJECTIVES

After going through this Unit, you should be able to:

- explain the concept, and importance of quality in education;
- describe certain criteria of quality of education;
- explain the concept of quality control, quality assurance, and quality gaps;
- discuss quality control and quality assurance in the context of managing educational institutions;
- enumerate common indicators of quality control and quality assurance in the educational context;
- discuss the interrelationships between quality control and quality assurance; and
- describe the ideas of the famous exponents of the TQM and their implications for quality education.

16.3 UNDERSTANDING QUALITY

The term quality has been borrowed from industry. As you know, in the past the functions attached to education and industry were distinct. Today there has been amalgamation of functions as industry has replaced its values of hierarchy, power and control by values of autonomy, cooperation and sharing of responsibilities – values generally linked with the academic world. Similarly, educational organisations have been adopting corporate patterns of organisation, including strategic planning, delineation of responsibility and accountability. As a result educational organisations have been using management concepts in their operations.

As quality management has become a necessary requirement in the corporate world in national and international arenas, there have been many definitions of quality given

by theorists and management experts. Some of the widely accepted definitions of quality are as follows:

- Quality is a predictable degree of uniformity and dependability, at low cost and suited to the market (Deming).
- Quality is a fitness for use (Juran).
- Quality is conformance to requirements (Crosby).
- Quality is the (minimum) loss imparted by a product to society from the time the product is shipped (Taguchi).
- Quality is, in its essence, a way of managing the organisation (Feibynbaum).
- Quality is correcting and preventing loss, not living with loss (Hoshin).

The above definitions reflect a common vision of quality. The universally accepted definition of quality given by ISO is as follows:

Quality is the totality of characteristics of an entity that bears on its ability to satisfy stated and implied needs.

Though the above definition appears simple enough, it conveys a lot of meaning about the requirement of quality. The second part of the sentence is crucial as it emphasises the ability of the entity to satisfy stated and implied needs of a customer. An entity may be a process or a product of an organisation. Needs or requirements may be stated in due form of a specification by the customer or they may be understated by implied either by convention, customers' expectations or by statutory requirements of a society. The implied needs are expected to be identified by the supplier or the producer.

Quality in itself is a complex issue, therefore has different interpretations. They are as follows:

- Absolute vs Relative
- Producer's vs Consumer's
- Product vs Service

Let us discuss each interpretation for our understanding.

Absolute vs relative quality : The absolute quality is an ideal state with which there can be no change. Here the laid down standards are met to the perfection level. They are valuable and convey prestige to the producer. The main features of absolute quality are rarity, class and expense. Examples of this type could be seen in the educational institutions like world famous universities/institutions like Cambridge University, Oxford University in England, MIT, Stanford University, Wharton Business School in USA and AIIMS, IITs and IIMs in India. At the school level also many schools attained these standards. The reason behind this is the claim linked to their products or students are preferred admission in good institutions and in job markets, they are absorbed by market/world of work with better placement status and salary.

The word relative has different connotations. It signifies the quality not as an attribute of a product or service but something which is ascribed to it. This view says, quality can be judged to exist when good or service need not be expensive and exclusive. In educational institution's context, adequate infrastructure, relevant curriculum and proper teaching services may all display quality if they meet pre-determined standards.

Here we all have been confronting with the basic problem that what kind of quality

we would like to opt – absolute or relative in the context of our educational institutions? There is no one solution to this issue. It depends both the institution and its' context.

Producer vs Consumer : In all the transactions there are two partners. Similarly in education service sector too there are the producer and the consumer. Both bear different expectations. Therefore the relativity aspect has two sides. One denotes the specifications listed by the producer and on the other requirements of the consumer or costumers. Ideally there should be perfect matching but reality is different. The first usage of measuring up to specification is often considered as fitness for purpose or use. This is sometimes called **producer's definition of quality**. It is generally equated to the pre-specified quality products or service quality over a period of time by the producer. For example, the similar pattern of campus placement retained by a professional institution over a period, say five years or more. Quality is also demonstrated by the producer having a system, which enables the consistent production of the outputs or services to a particular standard or specification. A service or product quality is demonstrated so long it consistently meets its producer's claim. This attribute of quality is also called as **reliability**. For example any senior secondary school passout from Central Board of Secondary Education is of same quality irrespective of the location, medium and type of school s/he attended. Similarly IIMs products claim to be similar irrespective of the IIM they have studied. This view of quality sometimes called **quality in fact**.

On the other side quality perceived by the users is equally important. According to this view quality satisfies and exceeds customers' needs and demands, therefore it is referred as **quality in perception**. Here customers are the main certifiers of quality standards by comparing their perception scores over their expectations on satisfaction. Now the question we have been grappling regarding this aspect is – should we plan quality education as defined by the market or consumers or should educational institutions have their own standards?

Product or service : Similarly we can also classify education as a product or a service category. The distinction between a product and a service is predominantly due to some basic differences between the two which have a bearing on how their quality can be assured. If education is seen as a production system with **graduates** emerging out as the products, for quality assurance the input/raw materials or students must pass through a standard set of processes and out put must meet defined specifications. This model does not easily fit into education as it would need initial screening of potential aspirants in order to have high quality raw materials. This situation may be possible in some selected types of courses and institutions like IITs, IIMs, Public Schools, and so on. But institutions meant for wider access and mass education may not be able to follow the strict and selected parameters to have quality input materials. For example, under Sarva Shiksha Abhiyan (SSA) all students are admitted to primary schools irrespective of heterogeneity.

Seeing education as a service makes it imperative that education is mainly a service than a product. Therefore, it is more important as to how an outcome is arrived at than what the outcome is. Here quality of physical and human resources used and the quality of technology and management utilised becomes more important in the production of the final output. Though it is difficult to measure the quality of service but ultimately it ends up in the manufacture of educational products. Thus quality of educational service and product both are equally important while analysing the final quality of education. The quality as expressed by Davis(2009) “ **Quality is an important issue but it is not easy to deal with it. It is often subjected to one's own interpretation. Hence countries should establish their quality and accreditation norms before inviting foreign institutions**”.

16.4 CRITERION OF QUALITY

The explanation of the term quality from various aspects leads to certain criteria of quality. Under quality of education these criteria are as follows:

- Education is both a product and a service. For analyzing the final quality of education, both the quality of educational service and the product is important.
- Quality of educational service or product can be defined as that which satisfies consumer's needs and requirement.
- Quality of educational service or product can be judged if they meet some pre-set criteria/specifications.
- Quality of educational service or product can be assured by its producer. So long as the product or the service conforms to their manufacturer's specifications and standards, they exhibit quality. Quality can be retained by regular monitoring and subsequently improving the service or product.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

1) Define the concept of quality.

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2) Write three main ways that can be used in interpreting the term quality.

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3) Explain any one criterion of quality.

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16.5 DIMENSIONS OF QUALITY

In the education sector also, perception of the stakeholders is the main deciding factor of quality. You might have observed that parents want their wards to get admission in the best school. Similarly all aspirants for medical education prefer AIIMS as their first priority and similar is the case with other education courses as well as institutions. Thus, based on the stated and implied needs of the customer, the

product to be provided by the supplier has to have certain characteristics and features and ultimately it is the customers who determine whether or not quality has been achieved. Standards have, therefore, to be established specifying the characteristics to be measured either by determinants or by subjective criteria or a combination of both. The various dimensions of quality which the customer look for in a product in order to satisfy their needs, determine the characteristics of the product. Some of them are as given below:

- Performance
- Features
- Reliability
- Conformity
- Durability
- Serviceability
- Aesthetics
- Perceived quality
- Time
- Timeliness
- Completeness
- Courtesy
- Consistency
- Accessibility and Convenience
- Accuracy
- Responsiveness

You might feel most of these attributes are, important in the corporate sector where customers' demands with respect to products appearance, service, durability could be anticipated and satisfactory services could be provided for quality. It is obvious when we are dealing with machines or goods and already aware of the expected service details, it is easier to control as well as assure quality products and/or services to clients. In today's competitive world, where education is seen as a service sector, for providing quality education to students these attributes must be ingrained in an educational institution.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with the one given at the end of this unit.

4) Write any five attributes of a product or service for managing quality.

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16.6 FACETS OF QUALITY

For the producer as well as the supplier of the product or service, in order to provide quality product or services, it is mandatory to consider what constitutes quality. This has been explained in detail in the earlier section. There are four facets of quality, which cover most of the dimensions that are key points to product quality. The facets are as follows:

- **Need for the product:** The first facet of quality is due to the extent and completeness of defining and updating the product needs to meet market places requirements and opportunities.
- **Product design :** The second facet of quality is due to designing in to the product the characteristic (based on quality dimension) that enables it to meet market place requirements and opportunities and to provide value to customers and other stakeholders.
- **Conformity to product design:** The third facet of quality is due to maintaining day to day consistency in conformity to product design and in providing the design characteristic and values for customers and other stakeholders.
- **Product support:** The fourth facet of quality to furnishing product support throughout the life cycle as needed, is to provide the design characteristic and values for customers and other stakeholders.

Unlike quality planning and quality control processes quality improvement is the means by which an organization selectively identifies, implements and changes on the subsystems level. Quality planning and quality control establishes a stable/consistent product quality “culture”, or foundation, throughout an organization. The third aspect i.e., quality improvement provides managers the means to find and rectify the basic quality – limiting causes embedded in the organisation.

Check Your Progress

Note : a) Space is given below for writing your answer.

b) Check your answer with the one given at the end of this unit.

5) List four facets for quality management.

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16.7 QUALITY CONTROL

It is an after-the-event process which is concerned with the detection and elimination of the final products that are not of expected standard. Control is an activity which takes place after the process has occurred and is carried out by a third party and usually not by the producer. It involves checking and monitoring. Testing and inspection are the most common methods of quality control, and are widely used in education to determine whether standards are being met. In education, two methods are used for quality control. They are as follows:

- National Education Testing (NET) is one of the ways to screen the product as being used by UGC for the selection of JRF's/ Lecturer's eligibility.
- Agencies like National Assessment and Accreditation Council (NAAC) under the University Grants Commission and National Board of Accreditation (NBA) under the All India Council for Technical Education. NAAC is associated with evaluation of higher education institutions and NBA assesses programmes for professional courses.

The question is whether we are able to control the quality of education by adopting measures developed by concerned accreditation and assessment bodies. This issue needs further discussion.

Check Your Progress

Note : a) Space is given below for writing your answer.

b) Check your answer with the one given at the end of this unit.

6) Write names of any two agencies associated with quality in education.

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16.8 QUALITY ASSURANCE

Quality assurance is different from quality control. It refers to activities or steps under taken before and during the process of reaching the outputs/products. It is proactive and anticipatory. Generally standards and procedures are clearly defined in advance and the personnel are trained to be able to meet them. Its concern is to prevent faults occurring in the first place. Quality is designed into the process to attempt to ensure that the output is produced to a pre-set criteria/norms. In other words, it is the systematic review of the educational programme to ensure that acceptable standards of education are achieved. Quality standards are maintained by following the procedures laid down in the quality assurance system (QAS). The quality standards in education are associated with its input, process and output variables. It includes proper infrastructural facilities, properly qualified and professionally updated faculty, appropriate administrative support and facilitative and efficient management. These aspects include quantitative as well as qualitative aspects. You might be aware of the need for establishment of Internal Quality Assurance Cell (IQAC) by universities and colleges for continuous quality assessment and academic audit as one of the recommendations of the UGC for higher education institutions in the country. Now the main question is whether these cells really functioning as per the expectation and assuring quality of the institution.

Check Your Progress

Note : a) Space is given below for writing your answer.

b) Check your answer with the one given at the end of this unit.

7) Name some variables which influence quality education in an institution.

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16.9 QUALITY INDICATORS

Generally, the mission and vision of any educational organisation is the development of individual and society. The development in the proper direction is possible only if education provided by the organisation is of relevance which is one major components of quality. In this context if we think about providing quality education, it becomes necessary to know what constitutes quality in education. In other words what are the indicators/criteria of quality education and how can the quality be assessed and improved? In the field of education, these indicators may be understood in terms of all the three main variables i. e., input, output and process. Let us discuss each variable in detail.

16.9.1 Input Indicators

The input variables are nothing but the resources – physical, academic and financial, employed by the institution to produce the products of good quality. Thus it is necessary to count the inputs required for the efficient working of the education system for realising the laid down objectives. These variables work as an important indicator of the quality education. There are five types of input variables and are as follows :

- Academic resources or teachers/faculty
- Administrative support
- Academic infrastructure
- Physical resources, and
- Financial resources

Let us discuss each type for our understanding.

Academic resources: Teachers/faculty, students' curriculum, etc., constitute of academic resources in an educational organisation. Teachers carry out the teaching-learning process in classroom, supervise and assess student's progress, guide research students, carry out the individual and group research projects, engage in consultancy and extension services to the community, guide students and so on. Teachers are important quality indicator as they are more or less responsible for the enhancement or deterioration of quality of education.

To ensure this aspect, there is a need to attract, retain and motivate the best available talent in the education system. For this input transparency in recruitment, proper salary structure, adequate promotion channels, provision of professional growth, recognition and due incentives to motivated, committed and creative teachers must be ensured. You might have observed that at the school sector teachers devote a considerable amount of time in carrying out activities not related to teaching, like census and election duties and other administrative duties in the school as many schools do not have provision for administrative staff. To ensure quality, provision for in-service training participation in seminars/conferences/workshops along with presentation and publication of research papers/articles in journals must be an integral part of teachers' responsibilities.

Student's quality is also equally important. The admission criteria should be objective, transparent and ensure equal educational opportunities to all those interested in getting education. Provision of remedial and enrichment learning opportunities to students must be provided. Finally, the curriculum must be relevant, up-to-date. It must foster creativity and imagination among students in order to facilitate their all round development.

Administrative support: Next important input is the administrative system available to the institution. Effective working of the administrative system is important for good health of the school or college or any other educational institution. A good administrative system could lead timely and appropriate decisions and can create provisions for different types of facilities to the teachers, students, supporting staff members and others. Improvement in quality administrative system depends on the following points:

- Timely framing of rules and regulations
- Assigning responsibilities to all staff members
- Providing academic infrastructure, like classrooms, laboratories, library, computer and other facilities
- Registration and admission of students
- Examination and post-examination activities
- Distribution of salary and other financial/ management related activities
- Providing technological support, like e-governance
- Providing physical facilities, like means of transport and, communication, water and power supply, hostel and residential complex, etc.

The timely satisfaction of these requirements demands that the administrative staff should be competent, efficient and also sensitive to the needs of teachers and students. In reality, it is not only the number of administrative staff members an educational institution has but the onus of quality depends on the service rendered by them in realising the institution's objectives.

Academic infrastructure: Academic infrastructure of an educational institution is the backbone without which effective teaching-learning is next to impossible. It includes:

- Classrooms with proper light and ventilation
- Availability of instructional aids
- Well equipped laboratories
- Library with easy access to its books, journals and e-resources
- Computer and internet facilities

Proper academic infrastructure directly influences the quality of instructional processes which in turn affects the quality of educational output.

Physical resources: The crucial physical inputs for the smooth functioning of any institution are as follows:

- Transport and communication
- Water and power supply
- Staff quarter and hostel facility

- Security and medical facility
- Guest house and canteen facilities
- Sports and cultural facilities

Financial resources: Any educational institution needs adequate funds for buildings, libraries, laboratories, equipments, research, sports, cultural activities, hostel and other purposes. Payment of salaries to teachers, other staff members including casual or daily wagers, guest/part-time/contract faculty members or teachers (if uses their services). Besides, maintenance, extension and renovation activities require money. These facilities also directly influence the work and teaching-learning environment of the institution. As in India, most of the school level education are dependents on government funding and same is the case with higher and professional education institutions.

16.9.2 Process Indicators

This indicates the ways in which resources and factors are combined and used in order to produce an institution's output. It is related with the operational and management aspect of teaching, research and extension activities. Efficient working of the technological system also comes under it. The following points are to be considered under this aspect:

- Place/venue of teaching-learning activities.
- Use/reference of library books, journals and other resources(including e-resources) by students and faculty both.
- Modes of student assessment – continuous, terminal, theory, practical, seminar and so on.
- Administrative support to faculty and students for quality learning.

16.9.3 Output Indicators

This aspect includes quantity as well as quality dimensions of products. Firstly, the internal judgement of the output as assessed by the educational institution itself and secondly, the external assessment of the output by the society (i.e., market economy). First point denotes the internal efficiency of the system while the other to the external efficiency or social relevance of the system. There are various kinds of output indicators. Some of them are as follows:

- Number of pass outs
- Level of academic achievement
- The nature of skills and competencies attained by the students
- Research output
- Nature of institution-community interface
- Private and social rate of returns of education

16.9.4 Quality vis-a-vis Accountability

To assure quality we should assess the functioning, performance and standards of an institution. This has to be done keeping in mind its mission, goals and objectives. This is known as test accountability of an institution.

In the simplest form, accountability means being answerable for one's action. The main purpose of the system of accountability is to ensure minimum performance and thus help in enhancing the quality of education. The accountability of any educational institution can be discussed in term of academic, administrative, and financial matters. However, there has been a debate on the manner in which the assessment of quality vis-à-vis accountability is to be conducted-through internal mechanism (self management) or by external agency (Powar, 2002).

Internal assessment (self-assessment)

Successful internal assessment presupposes that minds are open and receptive to ideas. It requires the involvement of all major stakeholders including teachers, students and management to get their feedback. Assessment of all the programmes and work of all the individuals of the institution is mandatory. It may be conducted on the following ways:

- Self-appraisal of teachers
- Self-appraisal of departments

Internal-appraisal of the teachers includes work of heads of departments and deans of schools and internal review covers the work of main administrators like registrars, controllers of examination, finance officers, and Vice-Chancellors in universities and principals and vice-principals in schools and colleges. It also includes review of the work of librarians, directors of academic staff college, college development council and physical education and also reviews the work of engineers, wardens and doctors of the institution.

External assessment (accreditation)

External assessment is a mechanism of quality control in the functioning of education. The focus is more on the culture of compliance rather than one of continuous quality enhancement. Fund allocation to colleges and universities is generally based on the recommendations on external assessment. Finally, it helps in the institutions in the process of quality enhancement.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

8) Write the common variables placed under input variables.

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9) Mention any two types of output indicators in a school.

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16.10 QUALITY GAP

Quality gap is commonly used term to describe the difference between the pre-set criteria for quality control and the actual quality output in a product, service or process. In ideal situation there should not be any difference or gap but due to loss in transmission of service there is gap between the expected quality and the observed quality. A survey conducted by UGC (2007) as quoted by Kasetwar (2008) reveals that:

- On almost all indicators i.e. faculty standards, library facilities, computer availabilities, student-teacher ratio, and higher education are in crying need for upgradation.
- 90 percent of the colleges and 68 percent universities across the country are of middling or poor quality.
- The dropout rates among ST is maximum (61.5 percent) followed by SC (51.21 percent) and OBC (50.09 percent).
- There is only one computer for 229 students.
- Among 29.56 colleges only 10 percent made "A" grade, 66 percent were 'B' grade and 24 percent 'C' grade.

The above mentioned findings clearly show the need for improving the quality level of the higher education in our country.

16.11 TOTAL QUALITY MANAGEMENT (TQM)

Total quality management is about creating a quality culture. It is about providing the customers with what they want, when they want it and how they want. In TQM, the customer is in the focus of the quality. In the education context, students are the quality product instead of the school, or college or professional institution. It involves moving with changing customer expectations and aspirations to design programmes/ courses of studies and providing learning experiences in the form of services which meet and exceed their expectations. In education, the quality and relevance of the courses are important. To understand TQM the following questions need to be addressed:

- Are the courses of studies updated?
- Are the existing subjects of studies still relevant to the society?
- What new subjects of studies are in demand now and how can they be provided?
- Are the students and parents satisfied with the procedures of examination and evaluation?

In TQM, the most powerful vehicle for ensuring quality relationship is the effective team. It recognizes and respects the potential of every individual's autonomy as it anticipates what is to be done to produce the best.

The success of any quality assurance initiative is greatly dependent on the managerial factor. It is essential that the institutional management be totally committed to the concept, be able to visualize future actions in their totality and design appropriate procedures. You may like to know that the Japanese concept of TQM is being sought to be applied to educational institutions worldwide. TQM is a philosophy of continuous improvement – hence also known as **continuous quality improvement (CQI)** - which can provide educational institutions with appropriate tools to meet the needs and expectations of their students and other stakeholders. It emphasizes management by fact, improvement, change and continuous innovation.

Note : a) Space is given below for writing your answer.

b) Check your answer with the one given at the end of this unit.

10) State the philosophy of TQM.

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16.12 QUALITY EDUCATION

There is a great deal of confusion about the precise connotation of the concept of quality in education. This is because of the fact that three different expressions – quality, standards, and efficiency – are being used in different context, sometimes interchangeably. Considerations of quality of an education system sometimes involve consideration of several independent variables like significance, relevance, capacity, standards, and efficiency (Naik, 1975). With a variety of meanings and connotations, quality is referred to by some authors as a ‘slippery concept’ (Pfeffer and Coote, 1991). The confusion associated with the meaning of quality is aptly described by Pirsig(1974):

Quality ... you know what it is, yet you don't know what it is. But that's self-contradictory. But some things are better than others, that is, they have more quality. But when you try to say what the quality is, apart from the things that have it, it all goes poof! There is nothing to talk about it. But if you can't say what Quality is, how do you know what it is, or how do you know that it even exists? If no one knows what it is, then for all practical purposes, it doesn't exist at all. But for all practical purposes it really does exist... So round and round you go, spinning mental wheels and nowhere finding any place to get traction. What the hell is Quality? What is it? (p.171)

Let us examine the connotation of quality in education in the context of the total quality management (TQM).

16.12.1 The Concept of Quality Education

TQM which very often deals with the quality of industrial or business management, quality of product or service, is concerned with customer's satisfaction. Customer's satisfaction is dependent on his/her expectations and the performance of the product or service whose quality is being assessed. The concept of quality may be examined in relation to its relevance for education.

The American Society for Quality Control defines quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (Johnson & Winchell, 1990). According to (British Standard Institution, 1991) the quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

Quality can be quantified as:

$Q = \frac{P}{E}$ Where Q= Quality, P= Performance, and E = Expectations

If Q is greater than 1.0, then customer has a good feeling about the product or service.

(Besterfield et al.,2003)

A more definitive statement about quality is given in ISO 9000: 2000. It has defined quality as the *degree* to which a set of *inherent characteristics* fulfill *requirements*.

Degree means that the quality can be used with adjectives such as poor, good, and excellent. *Inherent* is defined as existing in something, especially as a permanent characteristics which can be quantitative or qualitative. Requirement is a need or expectation that is stated; generally implied by the organization, its customers, and other interested parties or obligatory (Besterfield et al., 2003).

From the above explanation, four components of quality emerge:

- i. Quality is defined by the customer or stakeholder.
- ii. Quality is intricately connected with the needs and expectations of the customers.
- iii. Quality can have several dimensions of customer satisfaction – meeting, exceeding, and delighting.
- iv. Customers' needs and expectations change over time.

In education, there are various stakeholders, such as students, teachers, parents, community members, administrators, etc. The students are the primary stakeholder of any education system. Therefore, the quality of education is, to a large extent, tied to the students' needs and expectations. If we reformulate Downey's (1991) explanation, we can say that quality education should meet, exceed, and delight *learners'* needs and expectations with the fact that these needs and desires will change over time.

16.12.2 Dimensions of Quality Education

Quality may have several dimensions. Garvin (1988) lists as many as nine dimensions of quality. They are performance, features, conformance, reliability, durability, service, response, aesthetics, and reputation. A more comprehensive list of dimensions of quality has been recommended by the American Society for Quality Control (see Table 18.1).

Table 18.1 Dimensions of Quality

Dimensions	Definition
Accuracy	Correctness; freed from mistakes
Aesthetics	How a product or service looks or feels?
Assurance	Teachers' and other employees' knowledge and ability to convey trust.
Conformance	Degree to which product or service matches established standards (e.g., right the first time).
Consistency	How closely a product or service resembles those that precede and follow; lack of variation and irregularity.
Durability	Useful life of a product or service; how much usage it gives before it deteriorates.
Empathy	Caring, individual attention provided to customers.
Features	Characteristics of products or services that add to their basic functioning, such as user-friendly, induces-delight, or exceeding customers' expectation.
Performance	Primary operating characteristics of product or service such as on time, or error-free.
Precision	Degree of refinement with which an operation is performed.
Reliability	Dependability of performance over time.
Reputation	Image and record of the organization.
Responsiveness	Helping customers and providing prompt service.
Serviceability	Speed and ease in resolution of problems and complaints.
Tangibles	Physical facilities, equipment, and appearance of people.

● Quality in Education

The dimensions of quality of education in the TQM framework broadly grouped under three categories: product, software, and service. The specifications of these dimensions can be applicable, with necessary modifications, to other levels of education also.

Product is what is visible and tangible and is commonly understood as the parameter to assess the quality of the education system. Table 18.2 depicts the six dimensions to judge the quality of product in education.

Table 16.2: Product dimensions of quality in education

Dimensions	Definition in education
Performance	Primary knowledge / skills required for students
Features	Secondary / supplementary knowledge and skills.
Reliability	The extent to which knowledge/ skills learned is correct, accurate, and up to date.
Conformance	The degree to which an institutional programme / course meets established standards, plans and promises.
Durability	Depth of learning.
Serviceability	How well an institution handles customers' complaints?

Source: Owlia and Aspinwall (1996)

Now let us discuss software dimensions. Software is an intangible product and is considered more consistent with education in general and education in particular. For example, the dimensions of quality software used in engineering are as follows : correctness, reliability, efficiency, integrity, usability, maintainability, testability, expandability, portability, reusability, and interoperability (Watts, 1987). These quality dimensions have been applied by Owlia and Aspinwall (1996) to higher education (refer to Table 18.3).

Table 16.3 : Software Dimensions of Quality in Education

Dimensions	Definitions in education
Correctness	The extent to which a programme / course complies with the specified requirements.
Reliability	The degree to which knowledge / skills learned is correct, accurate, and up to date.
Efficiency	The extent to which knowledge / skills learned is applicable to the future career of students.
Integrity	The extent to which personal information is secure from unauthorized access.
Usability	The ease of learning and the degree of communicativeness in classroom.
Maintainability	How well an institution handles customers' complaints?
Testability	How fair examinations represent a subject of study?
Expandability	Flexibility
Portability, reusability, and interoperability	The degree to which knowledge / skills learned is applicable to other fields.

Source: Owlia and Aspinwall (1996)

Now, we shall discuss service related quality dimensions. Services, unlike products or software, cannot be stored and are perishable. They are more akin to the processes. In education, services essentially refer to the educational processes. Parsuraman et al (1985) have proposed ten dimensions of services: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer, and tangibles. Owlia and Aspinwall (1996) after reviewing

several literatures have made a comprehensive list of service dimensions of quality higher education (Table 16.4).

Table 16.4 : Service Dimensions of Quality in Education

Dimensions	Definition in education
Reliability	The degree to which education is correct, accurate and up to date. How well an institution keeps its promises? The degree of consistency in educational process.
Responsiveness	Willingness and readiness of staff to help students.
Understanding customers	Understanding students and their needs.
Access	The extent to which staff are available for guidance and advice.
Competence	The theoretical and practical knowledge of staff as well as other presentation skills.
Courtesy	Emotive and positive attitude towards students.
Communication	How well teachers and students communicate in the classroom?
Credibility	The degree of trustworthiness of the institution.
Security	Confidentiality of information.
Tangible	State, sufficiency and availability of equipment and facilities.
Performance	Primary knowledge / skills required for students.
Completeness	Supplementary knowledge and skills, use of computers.
Flexibility	The extent to which knowledge / skills learned is applicable to other fields.
Redress	How well an institution handles customers' complaints and solves problems?

Source: Owlia and Aspinwall (1996)

After analyzing the three different approaches to quality in education, Owlia and Aspinwall (1996) tried to present a conceptual framework for quality education with six dimensions : tangibles, competence, attitude, content, delivery, and reliability as presented in Table 18.5. These dimensions are indicative of the areas that should be of concern to ensure quality in education.

Table 16.5 : Quality Dimensions in Education

Dimensions	Characteristics
Tangibles	Sufficient equipment / facilities; Modern equipment / facilities; Ease of access; Visually appealing environment; Support services.
Competence	Sufficient (academic) staff; Theoretical knowledge, qualifications; Practical knowledge; Up to date; Teaching expertise, communication.
Attitude	Understanding students' needs; Willingness to help; Availability for Guidance and advice.
Content	Relevance of curriculum to the future jobs of students; Effectiveness; Containing primary knowledge and skills; Completeness, use of computers; Communication skills and team working; Flexibility of knowledge, being cross disciplinary.
Delivery	Effective presentation; Sequencing, Timeliness; Consistency; Fairness of examinations; Feedback from students; Encouraging students.
Reliability	Trustworthiness; Giving valid award; Keeping promises, matching to the goals; Handling complaints, solving problems.

Source: Owlia and Aspinwall (1996)

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

1. What is quality education ?

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2. Mention the dimension of quality education according to Garvin.

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16.13 QUALITY EDUCATION: IDEAS OF QUALITY GURUS

Movement of TQM was brought about and enriched by the ideas of a number of thinkers in developed countries. The movement had its origin in the industrial management in the late 1940s which later flourished particularly in Japan. In its early days, the movement originated and dominated by eminent experts of statistical process control. It was Walter A. Shewhart (1931) working at the Western Electric and Bell Telephone Laboratories who developed control chart theory with control limits to study variations in the performance of systems. He also developed the PDCA cycle for learning and improvement (Refer Unit 17). But, W. Edwards Deming, a protégé of Shewhart, is considered as the father of the TQM movement. Other prominent leaders in the movement are Joseph M. Juran, Armand V. Feigenbaum, Philip B. Crosby, all from U.S.A. and Kaoru Ishikawa and Genichi Taguchi of Japan. But, so far as total quality movement in education is concerned, the contributions of W. Edwards Deming, Joseph Juran, and Phillip B. Crosby are considered crucial. Although all of them have concentrated on quality in industrial and manufacturing sector, their contributions can also be applied to other sectors, including education. Here, we have made brief presentation of their philosophies and tried to draw their educational implications.

16.13.1 W. Edwards Deming's 14 Points

Dr. William Edwards Deming (1900-1993), regarded as the father of quality movement, a statistician by profession started his career in the late 1920s at the Western Electric Hawthorne Plant and later moved to US Department of Agriculture when he worked on Shewhart's statistical methods related to product variation and product quality in industry. His expertise were used to develop quality of war materials during the Second World War. In 1950s he taught a group of Japanese scientists and engineers on his beliefs about how to use statistical processes to control quality of industrial products and manufacturing system. Deming's ideas are considered crucial in rebuilding war devastated Japan's industry and economy and in Japan's resurgence as an economic power in the world within a very short span of time. He

has authored a number of books including *Out of the Crisis*, and *Quality, Productivity, and Competitive Position* and many scholarly articles.

Deming's emphasis was on using statistical approaches to enhance quality of production by reducing variation. He also developed concepts of management that have a strong emphasis on employees. These are reflected in his famous book "Fourteen Points of Management" (Deming, 1982) His '14 points of management' with their implications in education are presented in the Table 18.6.

Table 16.6: Deming's 14 Points and their Educational Implications.

Deming's 14 Points	Educational Implication
1. Create constancy of purpose.	Create constancy of purpose towards the mission of the education system.
2. Adopt the philosophy.	Use quality premises to focus the management and leadership of the education system.
3. Cease dependence on mass inspection.	Cease dependence on summative measures of students and staff.
4. Cease doing business on price tag alone.	Develop long-lasting relationships with suppliers and base dependence on lowest cost in resources.
5. Continual improvement of process.	Improve constantly and forever the processes in the education system.
6. Institute training on the job.	Provide staff development opportunities to meet job expectations.
7. Institute leadership.	Leaders must initiate and model paradigm shifts.
8. Drive out fear; build trust.	Remove those structures that create fear in students and staff.
9. Break down barriers between departments.	Work in interdependent ways- break down barriers between groups in schools and between schools and district office.
10. Eliminate slogans, exhortations, and targets.	Eliminate the use of targets, slogans to encourage performance.
11. Eliminate numerical quotas.	Work on the process and do not reward staff based on student achievement gains.
12. Allow pride in workmanship.	Remove barriers that rob staff of pride in their work and students of the ability to concentrate on the job of learning.
13. Institute a programme of Self-improvement.	Have everyone in the education system help in its ongoing transformation.
14. Mobilize all staff members, teachers and other stakeholders to transform the system – do it.	Empower all employees and other stakeholders to transform the education system.

Source: Downey et al (1994)

Deming's four areas of profound knowledge

In 1991, Deming developed four interactive areas of profound knowledge which are important for their direct implications for education. These are presented below in a very concise manner:

Area	Description
Appreciation of a system	A system is a network or function within an organization that works for the aim of the organization. Management of the system requires knowledge of the interrelationships among all of the components within the system and of the people who work in it.
Knowledge of psychology	People are born with a natural desire to be creative and to acquire knowledge. Intrinsic, and not extrinsic, motivators are crucial to the workplace. Managers must understand psychology and people.
Knowledge of variation	Optimization of the system and improvements in productivity depend on an understanding of variability in processes.
Theory of Knowledge	Managers must understand the work and make predictions regarding work. Study of these predictions brings new knowledge.

16.13.2 Key points of Joseph Juran

Joseph Moses Juran (1904-2008), an electrical engineer by profession, worked at Western Electric from 1924 to 1941 where he was exposed to the concept of Shewhart. Juran went to Japan in 1954 to teach quality management. He defined quality as '**fitness for purpose**'. According to him a product or service can meet its specification and yet not be fit for its purpose. The specification may be faulty and not meeting the needs and expectations of the customer. For bringing qualitative improvement of product or service, Juran developed an approach having three components: **planning, control, and improvement**, and referred to as the Juran Trilogy (Besterfield et al, 2003). He pointed out that poor quality is the result of the failure of the management. He was also of the opinion that 85 percent of the problems in an organization is due to systems failure and the remaining 15 percent due to individuals (Juran, 1989).

Juran (1974) recommends a ten-steps approach in quality improvement. They are as follows:

- i. Build awareness of the need and opportunity for improvement.
- ii. Set explicit goals for improvement.
- iii. Organize to reach the goals (establish a quality council, identify problems, select projects, appoint teams, designate facilitator).
- iv. Provide appropriate training.
- v. Carry out projects to solve problems.
- vi. Report progress.
- vii. Give recognition and reinforce success.
- viii. Communicate results.

- ix. Keep records of changes.
- x. Build an annual improvement cycle into all organizational processes.

16.13.3 Key Points of Philip B. Crosby

Philip Bayerd Crosby (1926-2001) is perhaps the most influential management thinker in the field of quality who contributed to management theory and quality management practices. Crosby initiated the *Zero Defects* programme at the Martin Company Florida, plant. As the quality control manager of the 'pershing missile' programme, Crosby was credited with a 25 percent reduction in the overall rejection rate and a 30 percent reduction in scrap costs. Later he started his own management consultant company which offered courses in quality management. Crosby's response to the quality crisis was the principle of "*doing it right the first time*" (DIRFT). He is best known for his four absolutes of quality management (Crosby, 1984). They are:

- *the definition of quality is conformance to requirements*
- *the system of quality is prevention*
- *the performance standard is zero defects*
- *the measurement of quality is the price of nonconformance*

Crosby has given the list of 14 steps for quality management:

- i. Make it clear where management stands on quality.
- ii. Establish a quality improvement team to run the programme.
- iii. Display nonperformance as a quality measurement.
- iv. Use cost of quality as a management tool.
- v. Raise the level of employees' quality awareness.
- vi. Provide a systemic way of addressing problems.
- vii. Prepare to launch a zero-defects program.
- viii. Define supervisors' training requirements.
- ix. Conduct a "Zero-defects Day".
- x. Encourage individuals and groups to set goals.
- xi. Establish an "Error Cause Removal" reporting system.
- xii. Appreciate and recognize those who participate.
- xiii. Bring together quality champions, and network in quality councils.
- xiv. Do it over again.

16.13.4 Downey's Quality Fit Framework

Synthesizing the ideas of a number of quality experts, Downey (1992) identified 18 quality premises for designing a model that the educational institutions can use to diagnose their specific needs prior to implementing total quality education programme. This model called the **Quality Fit Framework** has been built around three leverage points found in every work setting which were earlier conceptualized by Weisbord (1987). The leverage points are: **purpose, structure, and relationship**. With the

expectation that these leverage points can turn anxiety into energy, Weisbord (1987) states that:

- *Purpose or mission* is the business we are in. It “embodies future visions on which security and meaning depend.”
- *Structure* is defined as “who gets to do what” and this “affects self-esteem, dignity, and learning.”
- *Relationships* are defined as the “connections with co-workers that let us feel whole – require cooperation across lines of hierarchy, function, class, race and gender.” (p.258).

The core premises within the three leverage points are interrelated and need be integrated in a systematic way. The 18 premises grouped under the three leverage points have been summarized in the box 16.1 given below. We shall discuss this model in Section 18.5 of the unit 18.

Box 16.1

QUALITY FIT FRAMEWORK

Eighteen core premises of the Quality Fit Framework using three leverage points – purpose, structure, and relationships.

Purpose: A quality system has four premises related to purpose:

1. Focuses on the customer.
2. Provides for a meaningful shared mission.
3. Has a sense of mission and constancy of purpose.
4. Believes in continuous improvement.

Structure: A quality system has seven premises related to structure:

5. Acts as a systemic organizational structure.
6. Focuses on optimization.
7. Is a rational organization.
8. Has an integrated webbed management structure.
9. Focuses on process.
10. Understands variation.
11. Uses a data orientation.

Relationships: A quality system recognizes that organizations are human endeavors and has seven premises related to relationships or dynamics.

12. Mobilizes the workers.
13. Has collaboratively, cooperatively interdependent workers.
14. Has an organizational culture of shared values and beliefs.
15. Understands how people are motivated.
16. Recognizes that most failures are attributable to faults in the system.
17. Provides for a community of learners.
18. Provides for constant communication and feedback.

Source: Downey, 1992

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

3. Mention the Juran ten-steps approach in quality improvement.

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4. Enumerate four absolutes of quality management of Crosby.

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16.14 LET US SUM UP

Quality is a commonly used expression but difficult to explain. There have been common associated terms, like quality control, quality assurance and quality gaps. The era of globalisation, privatisation and internationalisation of education is seen more as an entity could be comparable to industrial system. The borrowing of values of autonomy, cooperation and sharing of responsibilities from the education sector by the corporate sector has also led education system to have corporate pattern of organisation. Today educational institutions have been assessed and accredited on patterns similar to the corporate organisation. The term quality control denotes the dos and don'ts in planning and implementation related activities which help in delivering expected level of services in education system. The planning components like infrastructural facilities, teachers, entrants (freshers), administrative and support staff and teaching-learning materials are input variables. The process variables include the expertise and articulation of teachers in teaching-learning, use of instructional aids and nature of evaluation methodology used. Similarly number of passouts, nature of achievement, placement, etc. are the output indicators. All the three variables are important in the attainment of total quality management (TQM) in any educational institution. Similarly quality assurance could be equated to warranty mentioned in any product. Quality control is concerned with the product, while quality assurance is process-oriented. Similarly quality gap shows the difference between the pre-determined standards set by the provider and the actual attainment level of the output. Further, the concept of quality education and the ideas of important quality gurus in quality education have been discussed in detail.

16.15 UNIT END ACTIVITIES

1. Conduct a brainstorming session with a group of college students on the topic **need of quality control in Indian higher education**. Prepare a report highlighting the issues discussed in it.
2. According to you, what could be the main criteria of quality assurance in school education in India. Give justification in support of your answer.

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16.17 ANSWERS TO CHECK YOUR PROGRESS

- 1) Ref. section 16.3
- 2)
 - a) Absolute Vs Relative
 - b) Procedures Vs Consumer
 - c) Product Vs Service
- 3) The criteria are :
 - Education is both a product and service. For analyzing the final quality of education, both the quality of educational service and the product is important.
 - Quality of educational service or product can be defined as that which satisfies consumer's needs and requirement.
 - Quality of educational service or product can be judged if they meet some pre-set criteria/specifications.
 - Quality of educational service or product can be assured by its producers. So long as product or the service conforms to their manufacturer's specifications and standards, they exhibit quality. Quality can be retained by regular monitoring and subsequently improving the service or product.
- 4) Any five among the following
 - Performance
 - Features
 - Reliability
 - Conformity
 - Durability
 - Serviceability
 - Aesthetics
 - Perceived quality
 - Time
 - Timeliness
 - Completeness
 - Courtesy
 - Consistency
 - Accessibility and Convenience
 - Accuracy
 - Responsiveness

- 5) The facets are :
 - Need for the product: The first facet of quality is due to the extent and completeness of defining and updating the product needs to meet market places requirements and opportunities.
 - Product design : The second facet of quality is due to designing in to the product the characteristic (based on quality dimension) that enables it to meet market place requirements and opportunities and to provide value to customers and other stakeholders.
 - Conformity to product design: The third facet of quality is due to maintaining day to day consistency in conformity to product design and in providing the design characteristic and values for customers and other stakeholders.
 - Product support: It is due to furnishing product support throughout the life cycle as needed, to provide the design characteristic and values for customers and other stakeholders.
- 6) NAAC, NBA
- 7) Ref. Section 16.7
- 8) Academic resources; administrative support; academic infrastructure; physical resources; financial resources.
- 9) Number of students pass, level of academic achievement; the nature of skills & competencies attained by students;
- 10) TQM is about creating a quality culture in an organisation. In a college, the services and facilities provided to the college students are in tune with their needs and demands, shows the institution has created a quality culture. Summing up of the output of these services and facilities with provide the TQM level of that college.
11. Ref. section 16.3
12. Quality may have several dimensions. Garvin listed nine dimensions of quality. They are—Performance, Features, Conformance, Reliability, Durability, Service, response, aesthetics & reputation.
13. Juran 1974, recommends a ten steps approach in quality improvement. These are as follows:
 - i. Build awareness of the need and opportunity for improvement.
 - ii. Set explicit goals for improvement.
 - iii. Organize to reach the goals (establish a quality council, identify problems select projects, appoint teams, designate facilitator).
 - iv. Provide appropriate training.
 - v. Carry out projects to solve problems.
 - vi. Report progress.
 - vii. Give recognition and reinforce success.
 - viii. Communicate results.
 - ix. Keep records of changes.
 - x. Build an annual improvement cycle into all organizational processes.
14. a) The definition of quality is conformance to requirement.
 b) The system of quality is prevention.
 c) The performance standard.
 d) The measurement of quality is the price of non-conformance.

UNIT 17 TOOLS OF MANAGEMENT

Structure

- 17.1 Introduction
- 17.2 Objectives
- 17.3 Categories of Tools of Management
- 17.4 Quality Group Process Tools
 - 17.4.1 Brainstorming
 - 17.4.2 Nominal Group Technique (NGT)
 - 17.4.3 Focus Group Discussion (FGD)
- 17.5 Seven Basic Quality Tools
 - 17.5.1 Histogram
 - 17.5.2 Pareto Chart
 - 17.5.3 Scatter Diagram
 - 17.5.4 Trend/Run Chart
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17.1 INTRODUCTION

Total quality education (TQE) differs from other educational improvement efforts in three broad aspects:

- Quality is seen mainly in terms of customer's satisfaction - meeting and exceeding ever-changing needs and expectations of the customer, basically the learner.
- (TQE) aims at improvement in totality of each and every individual and systems/institutions.

- TQE is neither one time nor a recurring process. It aims at continuous quality improvement (CQI).

Further, learning which the centrality of all TQE efforts, is non-linear and extremely complex. Since, every learner has unique way of learning, it is difficult to monitor the learning progress of all learners, even within a grade, using one or a few tools and techniques using them at a particular time of an academic year as is the present practice in nearly all educational institutions.

TQE recognizes the importance of variances existing in all aspects - processes, customers and systems - of education. Reduction of these variances increases the quality of education. Variances arise out of two basic causes - the common and the special. Common causes like lack of feedback, unclear priorities, insufficient training, overextended or outdated procedures create comparatively small random variances and are likely to recur time and again. Because they arise out of minor systemic errors, they can easily be monitored and controlled using quality tools. On the other hand special causes like faulty procedures, failure to follow procedures, inaccurate inputs, or reluctance to change create variances which are unexpected and are difficult to accept. Such wide variances almost always result in major overhauls or changes in the system. Reduction of these variances requires continuous as well as timely identification and control of the causes of the variances.

For all these considerations, there is the need for large number of tools and techniques to be made available to the practitioners associated with the effective management of ensuring TQE.

17.2 OBJECTIVES

After going through this unit, you should be able to :

- describe various categories of tools and techniques used in the total quality management of education.
- discuss tools of TQM, the process of their construction and educational uses.

17.3 CATEGORIES OF TOOLS OF MANAGEMENT

In the management of education, as in other spheres of life, we are confronted with problems which need to be solved within a stipulated period. For ensuring quality education, the process of problem solution, among other requirements, need to be efficient. To be efficient, the process need to focus on the specifically identified problem components, develop and employ strategies that exactly fit to the focused problem components, and should not engage in wasteful efforts both in terms of time and resources. Therefore, when you are confronted with a problem working in any sphere of education, you need quite a large body of information or data at every stage of the problem solution.

Consider, for example, while working in a District Education Office, you observe that quite a large number of girls in rural areas of the district are staying out of the school or dropping out of the school prematurely before completing their schooling. In order to bring back all the school age girls of your district to the school and retain them till their successful completion of the school education, you need to have several information at your disposal for identification of the locality or community specific reasons of non-enrolment and drop-outs, planning strategies for their enrolment, identification of the status of learning of drop-out trying-out and finalizing the strategies, implementing and evaluating the strategies in solving the problems. You may also

need to know whether the school environment and classroom climate/practices are congenial for the girls or not, the resourcefulness of teachers and the availability of community and official support in the district. Besides, you need to help the teachers in monitoring the learning progress of the enrolled girls regularly so as to enable them to provide remedial/enrichment programmes for ensuring quality education. While you actually get into the planning for the problem solution, implementing and evaluating the strategies, you will surely experience the need for information/data on several other areas than those listed here. Now, the question is how to collect these data.

Just think for a moment. How many tools and techniques are immediately available to you at present? Perhaps one or two or none. While we are engaged in the TQE, we need a number of quality tools to gather data on all possible dimensions of the problem that we shall be encountering at different times. Use of tools that help quantify or provide information is a key element in process improvement. We in the school system very often rely on our intuitions than being empirical in our thinking. But accurate data help us to determine how well we are meeting our customer's requirements. Setting goals and then measuring that target are important indicators for improvement. Good use of tools tracks the use of resources and how efficiently they are used. In brief the journey of continuous quality improvement is always data driven (Downey, Frase, & Peters, 1994).

Latta and Downey (1994) group the tools for TQM into four categories:

- Quality group process tools (4nos.),
- Basic quality tools (7nos.),
- Tools used prior to planning and management (7), and
- Integrative quality tools (4).

These tools, as any other tools, are mainly used for gathering information or data for solving or in developing strategies for solving the problem we are confronted with. Problem solving processes involve six important phases so far as utility of the tools are concerned, they are:

- Problem identification,
- Problem analysis,
- Establish objectives/Targets,
- Examine solution Strategies,
- Implement action Plans, and
- Evaluate and revise the strategies based on feedbacks.

Every tool that has been listed here as quality tool is not an all purpose tool. Every tool has some definite function in collecting data required for some definite stages of problem solving process as specified above and has been summarised in the following figure.

Quality Improvement Tools and Techniques		Problem Solving Process					
		Problem Identification	Problem Analysis	Establish Objectives	Examines Solution Strategies	Implements Action Plans	Evaluate and Revise based on Feedback
Group Process	Brainstorming	X	X		X		
	Nominal Group Technique	X	X		X		
	Focus Group Discussion	X	X		X		X
Basic Quality Tools	Histograms	X	X				X
	Pareto Charts	X	X				X
	Scatter Diagrams	X	X				X
	Run Charts	X	X				X
	Cause and Effect Diagrams	X	X		X		X
	Flowcharts	X	X		X	X	X
Prelude to Planning and Management	Affinity Diagrams		X			X	
	Tree Diagrams		X			X	
	Matrices				X	X	
	Interrelationship		X	X	X		
	Radar Diagrams	X	X	X			X
	Force-Field Analysis	X	X	X	X		
	Benchmarking	X	X	X	X		X
Integrative Quality Tools	Action Planning	X	X	X	X	X	X
	Activity Network	X	X	X	X	X	X
	Plan-Do-Check-Act Cycle	X	X	X	X	X	X
	Hoshin Planning	X	X	X	X	X	X

Fig.17.1: Quality Tools: Their Use and Relativity to the Problem Solving Process

(Source: Latta and Downey, 1994, p. 10).

17.4 QUALITY GROUP PROCESS TOOLS

We are familiar with individual and group tests depending on the type of administration of pre-structured test or the tool. But participation of members of a group in attempting problem solution is quite a different technique altogether. These tools insist on group processes of offering free flowing creative ideas. Every one in the group can, without any hindrance, participate in the process which is little structured and the solutions arrived at may not be anticipated. In addition, working in groups, the tools help to :

- Engage the participating members in assuming ownership of the problem solving process and the problem solution emerging out of the group process.
- Create a learning situation where each member of the group learns why, where, when, and how to use quality tools.
- Demonstrate how educators may adapt a tool or process to make it work specifically in educational settings.
- Change suspicions that shroud the use of data and quantitative analysis to confidence in using applications that are appropriate.

In brief, group process tools or techniques provide the value-added component necessary for the quality tools to be substantive use in education.

Three quality group process tools described here are brainstorming, nominal group technique and focus group discussion.

17.4.1 Brainstorming

Linus Pauling once said, "If you want great ideas, you need to have lots of ideas." Brainstorming is the most popular technique for producing lots of ideas. It is an idea-generation technique to generate a list of ideas through group participation for the solution of a problem in a risk-free environment. The method was first popularized in the late 1930s by Alex Faickney Osborne through his book entitled *Applied Imagination* in which he speculated that groups could double their creative output with brainstorming (Osborne, 1963).

The basic rules : Osborne (1963) states four basic rules of the brainstorming intended to reduce social inhibitions among group members stimulate idea generation and increase overall creativity of the group. These rules are:

- **Focus on quantity:** This rule is intended for encouraging divergent production based on the belief that *quantity breeds quality*. The assumption is that the greater the number of ideas generated, the greater the chance of producing a radical and effective solution.
- **Withhold criticism:** During the stage of idea generation, criticism of generated ideas should not be allowed. Instead, participants should focus on extending or adding to ideas reserving criticism for a later 'critical stage' of the process. By suspending judgments, participants will feel free to generate unusual ideas.
- **Welcome unusual ideas:** Unusual ideas open up new vistas of thinking and are sparks of creativity which need to be encouraged. These are generated by looking the problem situation from a completely different perspective. These new ways of thinking may provide better solutions.
- **Combine and improve ideas:** Several good ideas may be combined to form a single good idea. It is believed to stimulate the building of ideas by a process of association.

The process : Ideally, the brainstorming session should be broken into two parts: the first for idea generation and the second for evaluation.

The following steps are usually followed for idea generation during brainstorming:

- i. Starting with a warm-up exercise especially when the group is novice, doesn't brainstorm frequently or when the group seems to be distracted by some other issues. This is essential to expose or bring back the group to the criticism-free environment. Word games, puzzles or humor may also be used at this stage to create a relaxed, free and enjoyable atmosphere. A simple problem is usually brainstormed as a part of the warm-up exercise, for example, *How to keep our classroom clean and beautiful?*
- ii. Setting the problem: Before a brainstorming session, it is critical to define the problem. State or write the topic clearly at the top of a flip chart or board. The problem or topic must be clear, not too big, and preferably in a question form such as *"How to improve quality of learning in the school?"*
 - Presents the problem and give further explanations if needed.
 - Establish a time limit for the process.

- Explain the rules of the brainstorming to participants. Ask and seek questions to clarify the rules. Obtain agreement/consensus on the rules to be followed.
- iii. Asking the brainstorming group for their ideas. The following points need to be kept in mind:
- Every one is encouraged to participate, either with original ideas or “piggybacking” (adding on to) other participant’s input.
 - All ideas are good; evaluating/critiquing/criticizing of ideas at the time of idea generation should not be allowed.
 - A large number of ideas should be generated. Focus initially on quantity, not quality of ideas.
 - All ideas presented are recorded in a text large enough for everyone to see. These are written on the white board or large sheet of paper serially. This will help to motivate participants and to jump back and forth between ideas without losing track of the main problem.
 - Participants may offer more than one idea at a time. Motivate/encourage participants to say anything, no matter how wild or “far out” they may seem.
- iv. After all ideas are generated, the participants may clarify ideas as needed.
- v. Organizing the ideas into categories, identify additional categories to include, and add within each category.

After the ideas are generated, the group then evaluates the ideas and select one idea or a category of ideas as the solution to the proposed problem.

- The solution should not require resources or skills that the members of the group do not have or cannot acquire.
- If acquiring additional resources or skills is necessary, that should constitute the first part of the problem.
- The solution must specify the way to measure progress and success.
- The steps to carry out the solution must be clear stated.

At no stage of the brainstorming process, managers should remain present in the room otherwise it may inhibit the free flow of ideas.

Educational uses : Brainstorming has all the potentials of generating ideas for bringing about continuous development of educational systems and processes at all levels. Some examples of the educational problems require brainstorming for generating solutions are:

- What is the method of recruiting effective teachers for the elementary schools of the state?
- How to ensure regular attendance of all enrolled children in schools?
- Strategies for enhancing community involvement in school activities.
- Ways of improving quality of learning achievement of students.

Brainstorming is a good technique for building comprehensive strategies for most of

the educational problems on a continuous basis. But this falls short of the requirements of a tool of evaluation. It is difficult to attempt quantification of variables in the search for problem solutions. In spite of these limitations its capabilities for generating ideas marked by number and novelty are valuable to the process of Continuous Quality Improvement.

17.4.2 Nominal Group Technique (NGT)

The NGT is a tool to bring a team in conflict to consensus on relative importance of issues, problems or solutions by completing individual importance ranking into a team's final priorities. It is widely used as a tool for decision making and planning by allowing a group to achieve consensus and prioritises issues. It can be seen as a more formalised or structured version of brainstorming or focused group discussion, as it retains the group consensus building process while harnessing a range of individual views. The nomenclature "nominal group" relates to the fact that it is a group in name only, as the views of each individual participant are collected individually.

The basic rules: The following are the basic rules of NGT

- **Individuals within the group:** When using this technique, the participants assemble in groups, but for all practical purposes they cannot interact with each other. The individual opinion is encouraged on the issue and the consensus is sought later.
- **No dominance by individuals:** There is very little scope of verbal interaction. Therefore, no individual, however powerful speaker he/she is, cannot dominate the proceedings.
- **Participation by each participant:** Each of the participants has to actively contribute to the proceedings. No one can remain passive or can escape from doing any activity conducted in the NGT.
- **Prioritisation of outcomes:** Not just listing the possible solutions, but to arrange them in order of priority considering their importance and viability is given more importance in the NGT.

The Process

As a matter of routine the following steps are followed in the NGT:

- i. *Introduction and explanation:* The session starts with a warm welcome to the participants and followed by stating the task or the problem, the purpose and the procedure of the meeting. The statement of the problem should be displayed prominently either writing on a board or on a flipchart. The statement should be unambiguous and clear for understanding.
- ii) *Silent generation of ideas:* The participants are allowed 5 to 15 minutes of silence to think on the problem and write down all ideas that come to mind on the problem on a sheet of paper provided to each of them. During this period the participants are not allowed to consult or discuss or share their ideas with others.
- iii) *Sharing ideas:* The participants are invited to share the ideas they have generated. Each member states one idea at a time. The facilitator records all the ideas advanced by the participants on a flipchart. This process continues when the participants have exhausted all their ideas. There is no debate or discussion about the items at this stage. Any new idea generated by the participants during this process is also included in the list. The process ensures

near equal contribution from all the participants. This stage may take 15 - 30 minutes.

- iv) *Group discussion:* When all suggestions are written, the participant may offer verbal explanation or further details on the item s/he has suggested when others seek any clarification on it. It must be ensured that each person gets chance to contribute without spending too much time on any single item. It is important to ensure that the process remains as neutral as possible, avoiding any judgment or criticism. If the group decides, it may suggest new ideas for discussion. Duplicate items may be eliminated at this stage only if the originator of the idea agrees. This stage lasts about 30-45 minutes.
- v) *Prioritizing the ideas:* Having clarified and eliminated duplication, individuals are asked to prioritize the recorded ideas in relation to the original problem. Following suitable process of voting and ranking the items are arranged in the form of a sequence in order of relative importance decided on the process of ranking. At the end each participant has a list of probable strategies/solutions to the problem arranged in order of importance for their immediate use.

Educational uses of NGT:

The NGT is used in all situations where brainstorming or other group techniques are employed. It has two distinct advantages over other participatory group techniques: First, it ensures equal participation of all the members of the group without exception. In other situations some feel reluctant to give their opinions or ideas for fear of being criticised or not to create any disturbance. But in NGT because of scrupulous avoidance of any value judgment of participants' ideas, every body feels free to participate. Again in participation, it has clear advantage in minimising the differences and ensuring relatively equal participation. Second, not only it helps in generating large number of ideas as in other group techniques, but the additional advantage is due to its emphasis on producing a list of ideas/strategies/solutions arranged consensually in order of importance. This helps the user for immediate selection of strategy suitable for his/her purpose. Other advantages include its emphasis on optimum use of time.

Major criticism against the NGT is its lack of sufficient flexibility and to a large extent encouraging consensus and conformity. In spite of best efforts, sometimes, opinions may not converge in the voting. There is no spontaneity involved with this method and very often cross fertilization of ideas may be constrained and hence the process may sometimes appear to be mechanical.

17.4.3 Focus Group Discussion (FGD)

In order to probe, for example, the consistent high rate of drop outs in the schools of a particular cluster in a district, the district authorities constituted a small group consisting of two teachers, three parents at least two of them had children who were drop outs, one *panchayat* member of the area, two members chosen from the school committees of two schools to probe into the phenomenon. Through in depth discussion on their experience on the phenomenon of drop outs, the group came out with a list of reasons and the strategy to check the drop outs to the school. This is a typical case of **focus group discussion**.

A *focus group* constituted of a few selected people from among the different categories of stakeholders of education is given the responsibilities of focusing on a specific problem of education which is experienced by them. It is called a *focus group* for two reasons : choice of participants are confined to the stakeholders or

those who are involved in different capacities with the problem under study and second, the group only concentrate on the required aspect(s) of a problem at a time.

The basic rules : The following two are the **basic rules** of focus group discussion:

- **The size of the group:** The size must be **just right** to be able to share their ideas but large enough to provide diversity of stakeholders. Approximately 6 - 12 participants guided by a facilitator form the group. However, the number of participants will depend on the objectives of the study (Stewart, 1990).
- **Spontaneity and freedom:** Once the question is posed before the group in an interactive setting, the participants are free to talk among each other focusing on the problem. Spontaneous participation is the key to a successful focus group discussion (FGD).

The process : The process followed in the conduct of a focus group discussion is as follows:

- i) **Determine the purpose:** Identify a problem within the educational system. Spell out the detailed dimensions of the problem with the help of situation analysis. This is required because the problem is usually qualitative in nature and will require a great deal of further clarification.
- ii) **Constitute the group:** Select the required number of members from among the different categories of functionaries/stakeholders of education associated with the problem so that it becomes a cross-functional group.
- iii) **Prepare the tools for FGD:** Design the data collection instruments like questionnaire, discussion guides etc.
- iv) **Conduct the session:** One of the group members act as a 'facilitator' or 'moderator' and another should act as a 'recorder'. The major functions of the facilitator are to introduce the session, encourage discussion and involvement build rapport and empathise, control the rhythm of the discussion without being obtrusive. At the end of the session, the facilitator summarises the deliberations and check for the agreements among the participants.
- v) **Process and analyse the results:** After conducting several sessions of with the same or different groups on the problem in focus, the facilitator and the recorder sit together, analyse the results using suitable techniques of qualitative analysis and draw conclusions.
- vi) **Develop and submit report:** Draft and submit a report documenting how the group met its mandate and came out with the solution(s).

Educational uses of FGD:

FGD can be an useful tool in evolving innovative or creative solutions to various challenges faced by the education system at its different levels. Some examples of such challenges are:

- Developing strategies for improving quality education in a district, cluster or in the school.
- Problems in management of activity-based classrooms.
- Strategies for developing greater responsibilities of students for their own learning.

Like other qualitative methods, focus groups give insights into not just *what* participants think, but also *why* they think so. It can reveal consensus and diversity of participants' needs, experiences, preferences, and assumptions. Group interaction allows participants to build on each other's ideas and comments to provide an in-depth view not attainable from individual questioning. Unexpected comments in the form of new perspectives can be explored with ease.

Typical small size groups may not be representative in FGD. It can generate a large amount of data that is often difficult to analyse the information collected may be more likely biased by subjective interpretations. More outspoken individuals can dominate the discussions and the view points of less assertive persons are often difficult to assess. The interpretations are more dependent on the skill of the facilitator. Again, too much moderator control means you hear very little of the participants' own perspectives and too little moderator control means you hear less about the topic that interests you.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

1. State the three qualities of group process tools.

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2. What are the educational uses of brainstorming?

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17.5 SEVEN BASIC QUALITY TOOLS

In the three group processes described in the Section 17.4 the participants very often need quantitative data apart from the qualitative information they receive or provide concerning the problem they are dealing with. Following basic tools which are in the form of a graphs or diagrams help the users to have a quick estimate of different aspects of the data relative to the problem under consideration. These seven tool are: histograms, pareto charts, scatter diagrams, trend/run charts, control chart, cause-and-effect Diagrams and Flow Charts. These are also called statistical process control (SPC) tools. Let us discuss each tool in brief.

17.5.1 Histogram

The management of a particular school wanted to know the picture of students abstaining from the school last week. The principal of the school found that on the working days during the last week the number of students who remained absent were as follows: Monday- 12, Tuesday-15, Wednesday- 27, Thursday- 22, Friday- 14, and Saturday- 16. The data are presented graphically. This type of graph is called *histogram*.

From this histogram we can get answers to several questions like “On which day maximum/minimum number of students were absent?”, “On which days the pattern of absentees were nearly same?”

The answers can be visualised with ease.

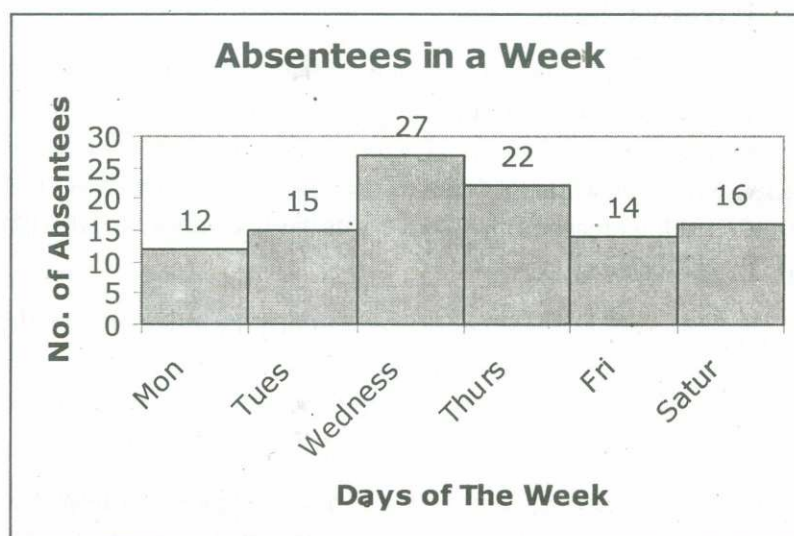


Fig.17.2: Histogram of Absentees in Week

A histogram is a combination of series of columns showing the frequency distribution of data (No. of absentees in the above example) collected on a given variable (working days of the week). The height of each column displays the frequency of data (number).

Process of construction of a histogram : You can follow a systematic way to construct a histogram.

- Collect the data and arrange them in a dichotomy of independent and dependent variables (like days in a week-no. of absentees, months- amount of rainfall, Different scores- no. of students obtaining each of the scores, groups or class interval of marks- no. of students securing marks falling within each class interval).
- Divide the x-axis (the horizontal line indicating the axis) into number of classes (depending upon the no. of categories in the independent variable, like no. of days, months, scores or class intervals) of equal width which becomes the base of the column.
- Complete the column (or, rectangle) with width of the class interval and the respective accumulation of data (or, frequency)
- Totality of columns is the histogram showing summarised results.

Educational uses : Because of the ease of its construction and comprehension, it is widely used in different spheres and so also in education. At every level of educational management, histogram in its varied form is very often used. Some examples of such use are:

- Number of teachers engaged in elementary schools during the last five years.
- Monthly school attendance during an academic year.
- Dropouts in the district over the last five years.
- Average marks in Class V Mathematics obtained by number of students in the

last six consecutive examinations.

- Number of students attaining mastery level in Language at Class I level during the last five examinations.

17.5.2 Pareto Chart

The District Education Officer of a particular district wanted to know the major reasons of non-attendance in schools of the district. With the help of the resource team the reasons identified were: (i) Home responsibility (60 percent of the respondents), (ii) Home work not done (25 percent), (iii) Difficult School Work (10 percent) and (iv) Other reasons (5 percent). This has been presented in a type of bar graph called pareto chart.

A Pareto chart is special type of bar graph in which the values being plotted are arranged in descending order of magnitude or importance from right to left. The graph is accompanied by a line graph showing the cumulative total of each category, left to right.

The chart is named after a nineteenth century Italian economist Vilfredo Pareto who tried to illustrate his famous 80-20 Rule - that 80 per cent of the wealth is concentrated with 20 percent of people. Juran, the TQM guru extended the idea to the problems in place of wealth and concluded that problems stem from 20 percent of all the varied causes (*vital few*), and the remaining 80 percent of the causes account for only 20 percent of the problems (*useful many*).

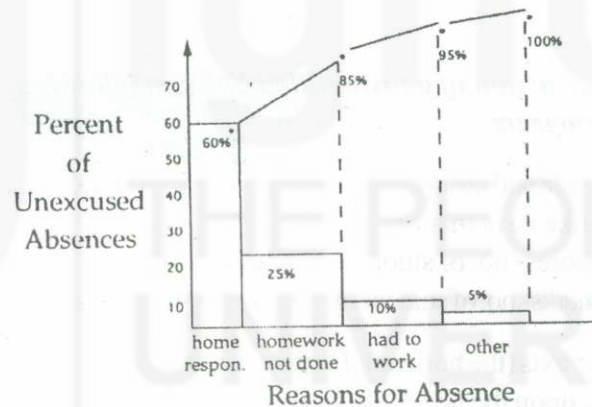


Fig.17.3: Pareto Chart of Reasons and Extent of Absence

Process of construction of pareto chart : we use the following steps while constructing a pareto chart.

- Select problems or areas to be analysed.
- Decide the standards of comparison for ranking the characteristics or grouping the data.
- Determine the time period of the study.
- Collect the data and calculate the occurrences (frequency) in each data category.
- Mark categories from left to right on the horizontal axis (x-axis) in descending order of their occurrences- from largest to smallest.
- Construct bar graph using the frequency of occurrences of each category.
- Calculate the cumulative frequencies and percentages.
- Construct a cumulative line graph over the bar graph.

After the completion of the chart, in order to solve the problem under study, the highest categories need to be attended on priority basis. One has to keep in mind that Pareto Chart does not provide any solution to a problem, but, helps to segregate the vital few causes from the useful many.

Educational uses : Pareto Chart can be used to analyse a diversity of educational problems confronted at different levels. Examples of some such problems are:

- Reasons for dropouts.
- Reasons of poor or late attendance.
- Excuses for poor achievement.
- Analysing parental complaints.
- Analysing factors of poor school climate.
- Analysis of causes of campus disturbances.

17.5.3 Scatter Diagram

After the results of the final examination of a class in a school came out, the class teacher wanted to know whether there is any relation between absenteeism of students and their performance in the examination. She identified the students who remained absent for more than five days and the total marks they obtained in the final examination. She plotted the marks against the number of days of absence and prepared a graph called *Scatter Diagram*. It is also known as *Scatter Plot*, *Scatter Chart*, *Scatter Graph* or *Scattergram*.

A scatter diagram is a graph that plots one variable against another. The data is displayed as a collection of points, each having the value of one variable determining the position on the x-axis, and the value of the other on the y-axis.

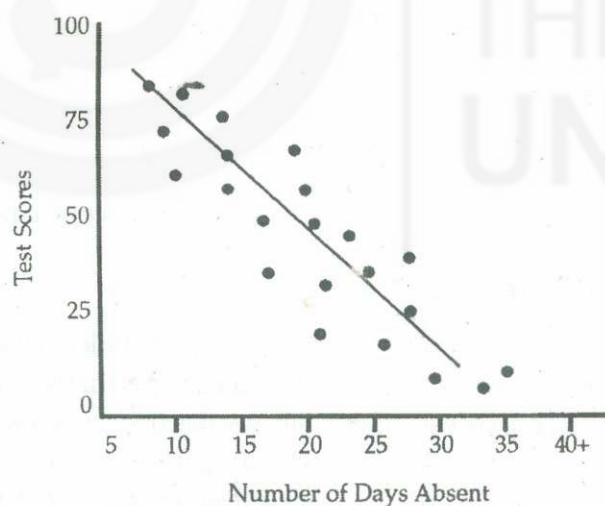


Fig.17. 4: Scattergram showing negative relationship

Properly plotted, the collection of points indicate to the possible relationship existing between the two variables.

- If the pattern of plotted points slopes from the lower left to upper right, it suggests a positive correlation between the variables under consideration.
- If the pattern of the points slopes from upper left to lower right, it suggests a negative correlation.

- If the points are scattered and do not demonstrate any clear trend, then the two variables have little relationship between them.

A line of best fit (or, a trend line) can be drawn in order to study the nature of correlation between the two variables. To confirm the nature of correlation, determining co-efficient of correlation and conducting regression analysis can yield statistically more authentic results.

The scatter diagram is a tool to study the nature and strength of relationship existing between the variables. From this no inference regarding cause-and-effect can be drawn.

Process of construction:

The construction of scatter diagram involves the following steps:

1. Decide the two variables whose correlation you want to study.
2. Prepare a graph with one variable (preferably, the independent variable) on the x-axis (horizontal axis) and the other on the y-axis (vertical axis).
3. Plot the points and examine whether the cluster of points indicate any linear trend i.e. whether a straight can be drawn from which an approximation of relationship between the two variables can be made.

Educational uses:

The scatter diagram is used when we are probing for any potential relationships existing between two variables associated with educational practice and outcomes. Some such examples (pairs of variables) where we can use the scatter diagram are:

- Absenteeism and score on a test.
- Average family income and performance in the final examination.
- Parental involvement and student attitude towards education.
- Teacher absence and student indiscipline.
- Time spent on learning and performance on unit tests.
- Amount of home assignment and student's performance on language tests.

17.5.4 Trend/Run Chart

The school authorities are worried over the problem of students absence from the school but they do not have idea precisely in which period of the year the students absence is maximum and when it is minimum. For that one can record the number of students remaining absent in every month during the last two years. These data when presented graphically take the form of *trend/run chart*. A *run or a trend chart* is a line graph of data points organised in time sequence and centered on the average/median data value.

It is a simple version of a single line chart and is often used to determine during what period(s) the process indicators of the variable concerned are changing or new trends developing. If the process indicators are correct and nothing else changes, there should be approximately equal number of data points arrayed both above and below the average line. Thus, plotting data on a run chart can help in identifying trends and relate them to the time they occurred. This helps in the search for the special causes that may be adding variation to the process adopted.

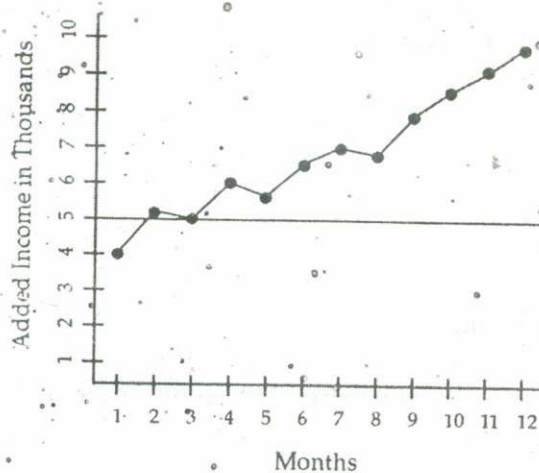


Fig.17.5: Trend/Run Chart of Added Monthly Income

Some special cause variation is revealed when we analyse the unusual run-chart patterns through the study of the trends of runs. *Runs are sequence of points that stay on one side of, either above or below, the average or median line.* One way of counting the runs is to circle these sequences and tally them. Another way of doing this is to count the number of times the run-line crosses the average line, and then add one.

Process of construction : The following process is used to construct a run/trend chart:

- Identify the area of concern.
- Determine the units of time to be displayed along the horizontal axis (x-axis). These periods might be years, months, days, hours, minutes, or seconds depending on how data is gathered.
- Determine the units of measure for data collected to be displayed along the vertical axis (y-axis).
- Make the horizontal scale about two to three times the distance of the vertical scale.
- Determine the average/median value of the data and label it on the vertical axis. Draw a line parallel to the horizontal axis through the point labeled as the average/median value. This line is called the *average or median line*.
- Plot the data points in sequence and connect each point to the next point in the sequence with a line.

Educational uses: Examples of educational problems where run chart is used:

- Campus indiscipline reported in last two years.
- Average weekly attendance during the last two consecutive quarters of the academic session.
- Score on the unit test in Mathematics of a class during the year.
- Average daily time spent on co-curricular activities during a particular month.
- Average monthly time spent per teacher on non-teaching work in the school.

17.5.5 Control Chart

- In a school with student strength of 250, it was observed from last six months' data that the average number of absentees per week is 45. In order to keep the absenteeism within a limit, it was decided to fix an upper and lower limit of 50 and 35 respectively.

per week. A chart was drawn with last quarters' figures of absentees week-wise with clear specification of the limits. The figures of absentees for subsequent weeks were recorded and when the figure in any week exceeded the specified limits the causes for this were investigated. This is an example of a control chart.

A *control chart* or otherwise known as *Shewhart chart* or *process-behavior chart* is a graphic representation of time-related performance of a process determined with either practical or statistical upper and lower limits. The control chart was invented by Walter A. Shewhart who was working for Bell Labs in the 1920s. The company was incurring loss due to uncontrolled increase in variations in the manufacturing process which ultimately resulted in degradation in quality of products. Shewhart framed the problem in terms of common- and special-causes of variation. He concluded that while every process displays variation, some processes display controlled variation that is natural to the process, while others display uncontrolled variation that is not present in the process causal system at all times (Wheeler, 1999). A control chart is intended to demonstrate the point when the uncontrolled variation set in to disturb the controlled variation.

A control chart contains the following features :

- Points representing measurements of a quality characteristic in samples taken from the process at different times.
- An average line, a central line drawn with mean value calculated from data and running parallel to the horizontal axis.
- Upper and lower control limits (also called "natural process limits") indicate the threshold at which the process output is considered statistically 'unlikely'.

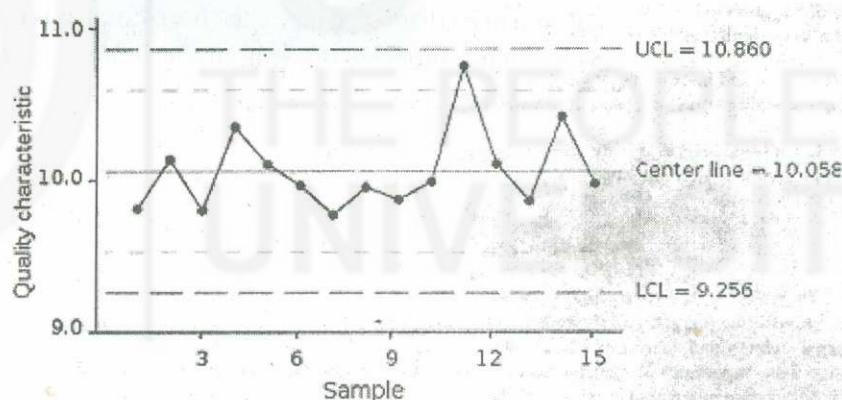


Fig.17.6: Structure of a Control Chart

Control charts show variation on the process variables and seek to identify the common rather than special causes of variation, carefully distinguishing between the two types of causes. If the process is in control, all points will lie within the control limits. Any observation outside the limits suggests the introduction of a new or unanticipated source of variation or otherwise known as a special cause of variation which needs immediate attention in order to keep the system in control.

Process of construction : Construction of control chart involves following steps:

1. Collect data on the issue or problem at predetermined time intervals.
2. Plot data on the control chart. The time intervals are shown on the horizontal axis and the values of the dependent variable on the vertical axis.
3. Calculate the mean of the data and draw a line (*central or mean or average line*) parallel to the horizontal axis running through the mean value plotted on the vertical axis.

4. Determine the upper and lower limits and draw the two lines equidistant from the central line on either sides of it. The limits can be determined either basing on the experience or at a distance of two standard deviations above and below the central line.
5. Additional features like the warning limits, division into time zones may be incorporated into the chart depending on the requirement of the organisation.

After the control chart is constructed, identify the points out side the upper and lower limits and determine the special causes for these points. Then build strategies to eliminate the special causes. At the same time, identify ways to reduce the normal variance resulting from common causes.

If due to the efforts, the normal variance gets reduced, then the mean of the observations shall increase and there will be requirement of adjusting the average line and the lines of upper and lower limits.

Educational uses : The use of control chart in education is mainly for quality control of management issues. Some such issues, as for example, are:

- Absenteeism of students month-wise over an academic session.
- Incidence of indiscipline in each month over a year. Number of students of Class IX not completing home work per week over a quarter of the session.
- Average weekly time spent on co-curricular activities over a period of a quarter.

17.5.6 Cause and Effect Diagram

The District Education Officer is worried over the problem of students' absence from the schools of the district and wanted to know all possible reasons. He uses different methods like FGD, brainstorming sessions with different groups of stakeholders. Collecting a large number of reasons of absence, he tried to categorize them into four possible major sources i.e. the students, the schools, family and others and plotted them in a chart for easy comprehension which helps in planning the strategies to check the absenteeism of the students.

The cause-and-effect diagrams that graphically show the causes and sub-cause that are related directly to the identified problem or event. This is also called *fish bone diagram* as it resembles the skeleton of a fish or an *Ishikawa diagram* after Kaoru Ishikawa, the quality guru of Japan, who first invented in 1943 and is being used widely since 1960s. The cause-and-effect diagram is based on two basic assumptions:

- A problem is composed of limited number of causes, which are in turn also composed of sub-causes.
- Distinguishing these causes and sub-causes is a useful first step to deal with the problem.

The diagram is created by participation of groups in the brainstorming process and is usually used as an useful tool during preplanning phase of problem solving. The benefits of the diagram, as noted by Ishikawa (1985) are the following:

- The creation of the diagram has educational purpose. While participating in the discussion, people learn from each other.
- The diagram helps the users to focus on the issues involved in solving the problem. This reduces complaints and irrelevant discussion.
- Its use helps in an active search for the causes of the problem.
- Its use helps in identifying data that can be collected to further the search for the solution of the problem.

- The level of complexity of the diagram is directly related to the level of understanding of the members of the staff who creates and uses it.

Process of construction: *The construction of a cause and effect diagram involves the following steps:*

- Identify, and clearly state, and agree on the problem or effect to be analysed.
- Draw a box containing the problem or effect on the right side of the diagram with a horizontal spine.
- Write the problem identified clearly in the box of the diagram which resembles the 'head' of the fish.
- Identify probable major categories of causes that relate to the problem identified, such as students, school, parents and other causes related to the problem of late or irregular attendance. These major categories are labeled as branches (fish bones) of the diagram (see Fig. 17.7).
- Brainstorm causes of the problem that fall within each of the major categories. As ideas are generated determine on which branch ('bone') the item is to be placed.
- Depending on next level analysis of causes, each branch may have several sub-branches in order to establish effective relationships.

It should be kept in mind that developing the diagram is a team work and there is no right or wrong answer. Therefore, as far as possible group consensus on the identification of causes and sub-causes need to be established without indulging in prolonged arguments. Sufficient care need to be taken to spell out the causes in specific, measurable and controllable forms.

The Cause-and-Effect Diagram

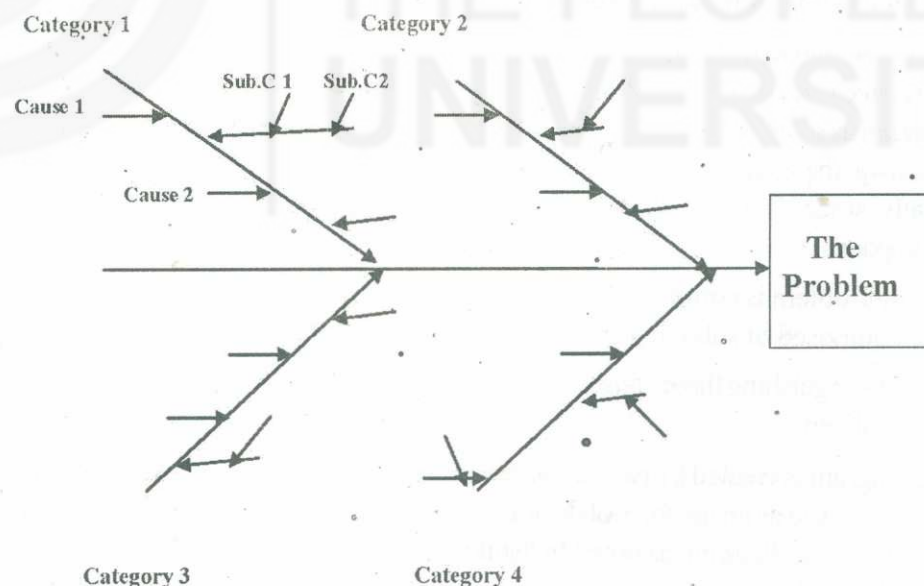


Fig.17.7. Structure of a Cause-and-Effect Diagram

Educational uses : The cause-and-effect diagram can be developed and used for solving any educational problem. As for example it can be used in identifying the causes of

- Student drop outs.

- Low, late and irregular students' attendance.
- Teacher absenteeism.
- Lack of community and parental involvement in school activities.
- Poor learners' performance.

The cause-and-effect diagram is useful for systematic identification causes of some problems/effects. It is not particularly useful for extremely complex problems, where many causes and many problems are interrelated.

17.5.7 Flow Chart

The mathematics teacher desires that all his/her students in grade 5 master the concept of each unit of lesson before moving to the next concept unit. With help of his/her colleagues he/she develops an activity schedule arranged in proper order of activities so that there would be little confusion in the progress of the students. The plan he/she developed in the form of a diagram(Fig. 17.8) which is called a *flow chart*.

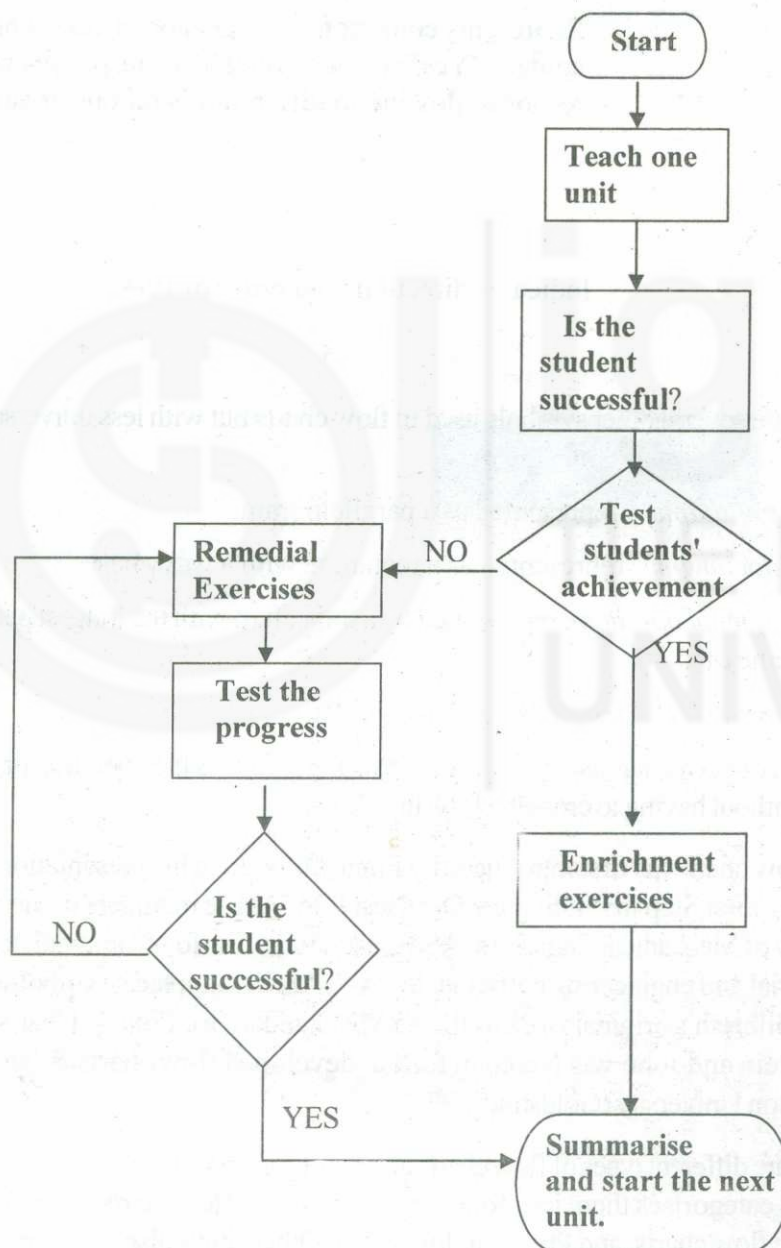
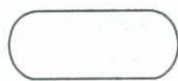


Fig.17.8: Flow chart of teaching for mastery

A *flow chart* is a common and visual way of representing a process showing its steps using various kinds of boxes and symbols. The steps are shown in different types of boxes in a well arranged order of sequence connected by arrows.

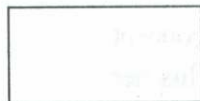
Common Symbols used in Flow Charts

Description



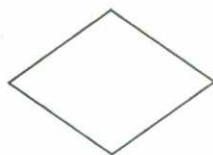
Oblong

The starting or ending of
of the process



Rectangle

Operation or activity performed
or planned to be performed



Diamond

Represents conditional or decision. These typically
contain "Yes/No" or "True/False" responses with each
response flowing to different operations or activities.



Arrow

Indicates direction and order of flow.

There are several other symbols used in flow charts but with less universality such as:

- *Input/output* represented as a parallelogram.
- *A document* represented as a rectangle with a wavy base.
- *A manual operation* represented by a trapezium with the longest parallel side at the top.
- *A data File* represented by a cylinder.
- *A connector* represented by a circle which connects the operation or decisions without having to cross the flow lines.

The flow chart was first introduced by Frank Gilbreth in his presentation "Process Charts - First Step in Finding the One Best Way" to the members of the American Society of Mechanical Engineers (ASME) in 1921. This found immediate use in the industrial and engineering curricula. In 1947, ASME adopted a symbol set derived from Gilbreth's original work as the ASME Standard for Process Charts. Herman Goldstein and John von Neuman further developed flow charts in late 1946s at Princeton University (Goldstine, 1972).

There are different types of flow charts depending on their use or content. Sternecker (2003) categorises them into four types: Document flowcharts, Data flowcharts, System flow charts, and Program flowcharts. Others have also developed different categories like, Decision flowcharts, Logic flowcharts, Product flowcharts, Process flowcharts, etc (Fryman, 2001)

The following are the steps of constructing a flowchart:

- i. Determine the purpose and scope of flowchart.
- ii. List all inputs and outputs.
- iii. Arrange the operations/activities in their required sequences.
- iv. Draw the flowchart selecting appropriate standard symbols. Keep the use of symbols to possible minimum for ease and clarity in communication.
- v. Review the flowchart as to whether it addresses the proper flow of events/activities, presents sequential and simultaneous events appropriately, accurately reflects the major decisions and repeats or omits any event/activity/decision.
- vi. Modify or delete those steps which are inefficient or unnecessary.

Educational uses : Flowchart has extensive utility as developing models for solving educational problems at each level of school system. Some such uses are given here as examples,

- Model of school improvement plan.
- Model for monitoring and academic support system for schools.
- Model for continuous and comprehensive evaluation programme.
- Model for cooperative learning programme in the classroom.
- Model for improving quality of education in the school.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

3. What are the basic tools of management?

.....

.....

.....

.....

4. What is Pareto Chart?

.....

.....

.....

.....

17.6 PRE-PLANNING TOOLS

In addition to the seven basic tools for pre-planning stage, seven, comparative newer, quality tools are also used at this stage. They are – Affinity Diagram, Tree Diagram, Matrices, Interrelationship Diagrams, Radar/Spider Chart, Force Field Diagram,

and Benchmarking. In this section these tools, the mode of their construction and their utility in education particularly in educational planning have been briefly discussed.

17.6.1 Affinity Diagram

The principal of a school, in order to develop a school improvement plan, was engaged in brainstorming session with a small group consisting of students, teachers and a few other stakeholders. Within the stipulated time he/she had quite a large number of ideas. It became her problem how to organize those ideas into a few manageable categories. The affinity diagram which clubs apparently disparate ideas into more similar looking groups of ideas could help his/her in solving her problem. The *affinity diagram* is used to cluster complex, apparently unrelated data into natural, meaningful groups. Used with the brainstorming process, affinity diagram helps the group to arrive at a consensus of grouping large number into quite a small number of categories of ideas according to their natural relationships. First introduced in the 1960s by Jiro Kawakawa, a Japanese anthropologist, this method taps the group's creativity and interest in solving the problem collectively.

Process of construction: The process as stated below is used to create an affinity diagram. Usually, the materials required are : sticky notes or cards, marker pen, large drawing sheets or board.

- Clearly identify the problem in objective terms.
- Use brainstorming process to generate ideas. Record each idea on a sticky note or card using marker pen so that it is prominent to the participants. Avoid single word ideas.
- Randomly post the cards/notes on a large work space like a big boards or drawing sheet. No specific order for posting the cards at this stage should be attempted.
- While posting the cards, each idea written on the card is to be read a loud so that the repetition can be avoided to a great extent.
- This process of generating ideas is to continue until the participants have exhausted all ideas.
- Silently and without any discussion, sort the items into natural groupings. The items can be grouped and regrouped by anyone at any time. It is very important that no one talk during this step.
- Once the groupings are determined, discussion is allowed. Minor changes may be made when the participants clarify their understanding.
- Once the groupings are finalised, create a header for each group of ideas.
- Divide large groupings into sub-groups, if needed, and create subheadings.
- Draw the final affinity diagram connecting ideas to the header cards (Fig. 17.9).

Educational uses:

The affinity diagram is culmination of brainstorming process. Therefore, any problem that requires brainstorming need affinity diagram for comprehensive visualisation of the components or solutions of the problem. Examples of some such problems may be:

- Reasons for students to drop out of school.
- Reasons for poor and irregular pupils' attendance.
- Why large number of students are not performing well in English.
- Strategies for improving community participation in school activities.
- Improving school climate for making it learner friendly.

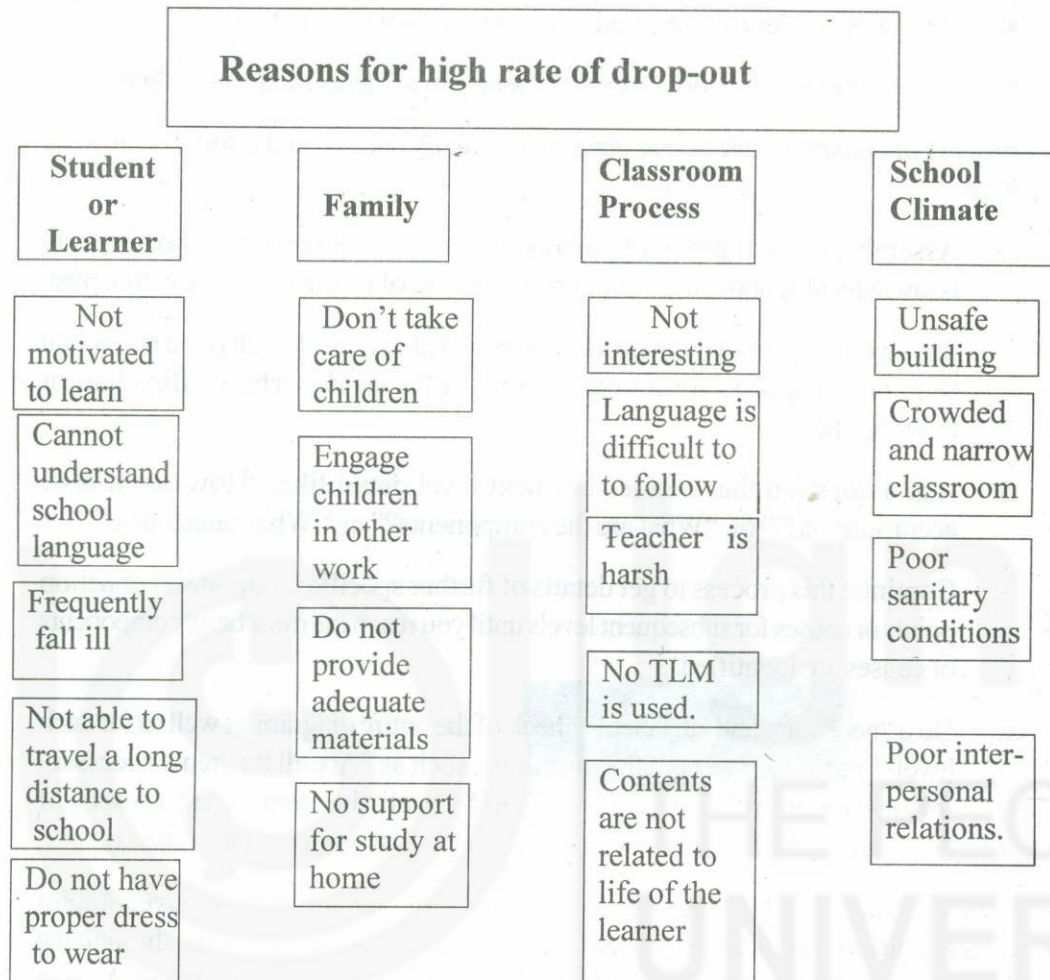


Fig.17.9: Affinity Diagram for the Reasons of High Drop-out Rate

Studies have shown that participating in the exercise for developing affinity diagram stimulates both left and right brain thinking and actually encourages creativity on everyone's part. Since there are no wrong answers, all participants' ideas count. The exercise which is very much focused on the issue as well as on time allows for comprehensive thinking concerning the issues, brings into fore the non-traditional connections among ideas and issues, often engages people discussing issues they normally might not discuss and it also allows breakthroughs to emerge naturally (Bernhardt, 2002).

17.6.2 Tree Diagram

A *tree diagram*, also known as systematic diagram, tree analysis, analytical tree and hierarchy diagram, is a planning tool used to break down broad categories logically and linearly into finer and finer levels of detail. Developing a tree diagram helps us to think step by step, from generalities to specifics. Further, a systematic

and linear branching of broad issues to identifiable components or actionable items helps to yield successful attainment of objectives. A tree diagram is used when

- an issue is known or being addressed in broad generalities and one must move to specific details to achieve the objectives.
- analysing the process in detail.
- probing for root cause of a problem.
- evaluating implementation issues for several potential solutions.
- as a communication tool, to explain details in a logical manner to others.

Process of construction: A tree diagram is usually constructed through following steps:

- i.. Assemble a small group of persons, usually 6 to 8 persons, who are quite knowledgeable about the issue and are capable of following up the action plan.
- ii. State the issue (problem or goal) in a box and place it the far left (for a horizontal tree) or at the top (for a vertical tree) of the work surface (flip chart or drawing sheet).
- iii. Ask a question that will lead to next level detail like, "How can this be accomplished?" or, "What are the components?" or, "What causes this?"
- iv. Continue this process to get details of further specific components or action points or causes for subsequent levels until you reach the most basic components or causes are identified.
- v. Do a "necessary and sufficient" check of the entire diagram as well as for each level. Findout answers of the questions, such as "Are all the items necessary for attainment of the objective?" and "If all the items were present or accomplished, would they be sufficient for the attainment of the objective?"

Educational uses : The tree diagram is suitable for planning any intervention for quality education. Once the problem is defined or an issue is identified, through the tree diagram a comprehensive list of actions or activities can be developed. Almost all the issues/problems of education require the tree diagram. Some of its uses are as follows:

- Improvement of learning climate of school/classroom.
- Enhancing teachers' capacity for facilitating learning.
- Increasing parent and community involvement.
- Increasing efficiency of textbook development, production and distribution.
- Enhancing the efficiency of the monitoring system.

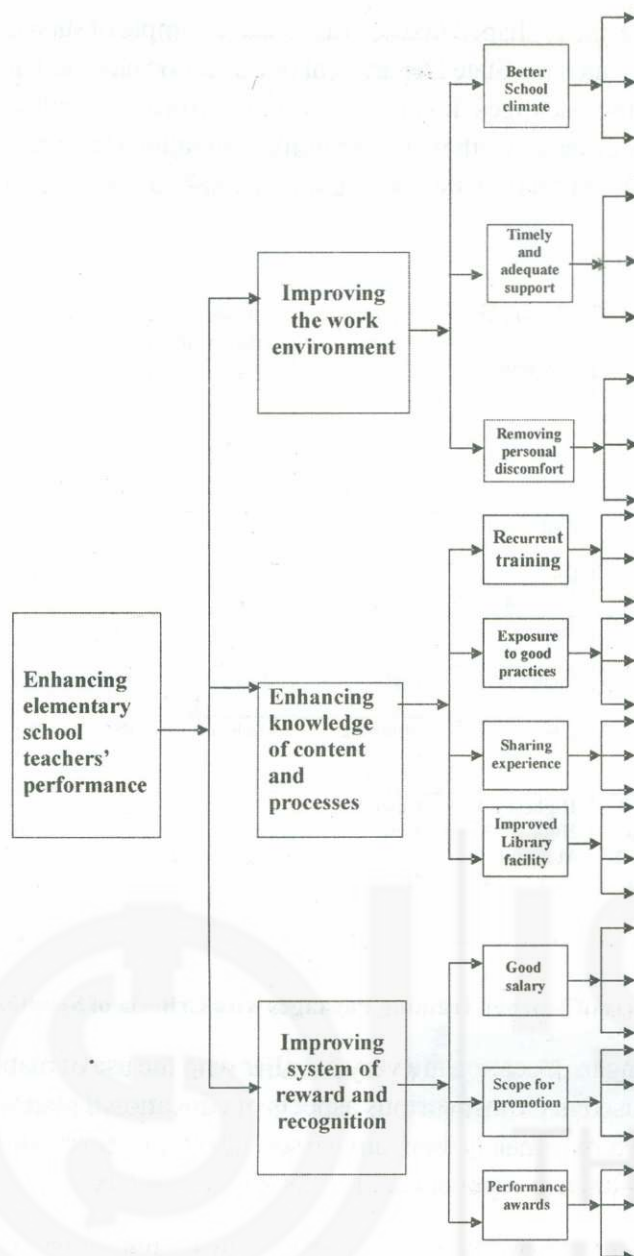


Fig.17.10: Sketch of a Tree Diagram

17.6.3 Matrices

A *matrix* (plural. *matrices*) is a simple chart in a tabular form that shows the relationship of various factors along one side (horizontally) with other factors listed along the other side (vertically). Data are presented in tabular form and can be subjective or objective, which are presented by single letter or word, different types of symbols, with or without numerical values.

Five differently shaped matrices are possible depending on how many groups are to be compared. They are:

- L-shaped (relating 2 groups/variables)
- T-shaped (relating 3 groups/variables)
- Y-shaped (relating 3 groups/variables)
- C-shaped (relating 3 groups/variables)
- X-shaped (relating 4 groups/variables)

Another form of matrix, called 'roof-shaped' matrix is used to relate one group/variable to factors within itself. In educational planning, mostly the first form relating

two groups/variables i.e. the L-shaped matrices are used. Example of such a matrix is given in Fig. 17.11 in which the State Department of Education has compared five different teacher training packages developed/available from different sources/agencies in terms of six criteria. Both word and numerical ratings have been used. Finally, the packages have been ranked basing on the totals of numerical ranks given each criteria.

Alternative Agencies	Cost	Acceptability by the organization	Effectiveness	Acceptability by teachers	Time to start	Time to implement	Total	Rank
Teacher Association	Moderate 3	Low 1	Moderate 2	High 3	Low 3	Lowest 4	16	3
State Resource Unit	Low (Best) 4	Highest 4	High 3	Highest 4	Lowest 4	Low 3	22	1
Engaging National Consultants	High 2	High 3	Highest 4	High 3	Low 3	Moderate 2	17	2
Reputed Institutions	High 2	Moderate 2	Moderate 2	Moderate 2	High 1	High 1	10	4
Standard Package available in the market	Highest 1	Low 1	Low 1	Low 1	Moderate 2	Moderate 2	08	5
Rating	Low - 4 Moderate - 3 High - 2 Highest - 1	Highest - 4 High - 3 Moderate - 2 Low - 1	Highest - 4 High - 3 Moderate - 2 Low - 1	Highest - 4 High - 3 Moderate - 2 Low - 1	Lowest - 4 Low - 3 Moderate - 2 High - 1	Lowest - 4 Low - 3 Moderate - 2 High - 1		

Fig. 17.11: A Matrix of Teacher Training Packages with Criteria of Selection

Those who are working in education are very familiar with the use of matrices as they are extensively used in almost various aspects of educational planning and decision making. The matrix is mainly used, among several other uses, for prioritising, identifying responsibilities, and communicating through use of symbols.

Process of construction: Following are the steps of constructing a matrix:

- A representative group consisting of six to eight individuals with some persons among them with the knowledge of matrices is to be formed.
- Decide on how the matrix is to be used.
- Identify the subjects of comparison like individuals, objects, processes, strategies of solving a problem, major tasks or activities for a job etc. and put them on the left side of the matrix.
- Identify the quality characteristics (i.e. the dimensions of comparison) and place them on the top of the matrix.
- Develop a system for evaluating/measuring/rating on each quality criteria in relation to the subjects to be evaluated/rated. These may be in terms of qualifying words like low, moderate, high and very high, excellent, etc. or in form of letters or pictorial symbols.
- Determine the relationship between a quality characteristic and all the subjects. The value agreed on by the group is then placed in the appropriate cell in the matrix.
- Continue until the matrix is completed.

- Decide on a point system for converting value judgments to a numerical value. Place the numerical values in the lower right corner of each cell in the matrix.
- Total the numbers across each row.
- Rank the subjects. One that gets the highest numeric value gets rank 1 and the next highest rank 2 and so on.

Educational uses:

The use of matrix in educational planning is very popular. Starting from the opening of a new school to performing any new or routine activities we employ matrix although formally not by its name. Selection of site for the new school, choice of design for the school building, recruitment of teachers, strategies for boosting enrolment, ensuring regular attendance, selecting appropriate method of teaching, improving pupils' performance and all such issues in school education require proper planning in which matrix can invariably be used with good results.

17.6.4 Interrelationship Digraphs

The *interrelationship diagram*, also called *relations diagram* and *network diagram*, is a planning tool that shows in pictorial form the cause-and-effect relationships among the elements of a problem or issue. Let us consider the situation in which a District Education Officer is feeling frustrated. He has put in his best efforts to implement a new strategy for school improvement programme in his district but the results are not very encouraging. Most of the schools did not show any tangible improvement. In order to probe into the failures, he had assembled a group of eight persons from among his officials, teachers, parents and experts. The group tried to analyse the causes of failure of the programme and came out with what is called the interrelationship digraph. As you know, the interrelationship digraph is used when we try to understand links between ideas, cause relationships in a complex issue or when a complex strategy is being implemented. Besides searching for causes, we can also find the interactions among the components of the issue from the diagram from which we can identify root causes and effects and study these relationships among other aspects of the issue.

Process of construction: The following steps are used in construction of an interrelationship digraph:

- i. Identify the issue or problem. Write the statement defining the problem on a card or sticky note and place it at the top of the work surface.
- ii. Identify ideas about the issue by brainstorming or take those ideas either from fishbone or an affinity diagram and place them on cards and arrange the cards in a circular pattern.
- iii. Analyse relationships- which idea influences which other idea. Join two related ideas by an arrow mark. One idea may have relationship with more than one other ideas.
- iv. Determine the direction of the arrow i.e. the position of the arrow head is crucial since the head indicate to the effect of the idea which is at the other end of the arrow.
- v. Count the number of arrows going in and out of each box and place those numbers in the respective boxes.

- vi. Identify root causes and effects. The root causes have the greatest number of arrows going out of boxes and root effects have the greatest number of arrows going into boxes. (see Figure 17.12)

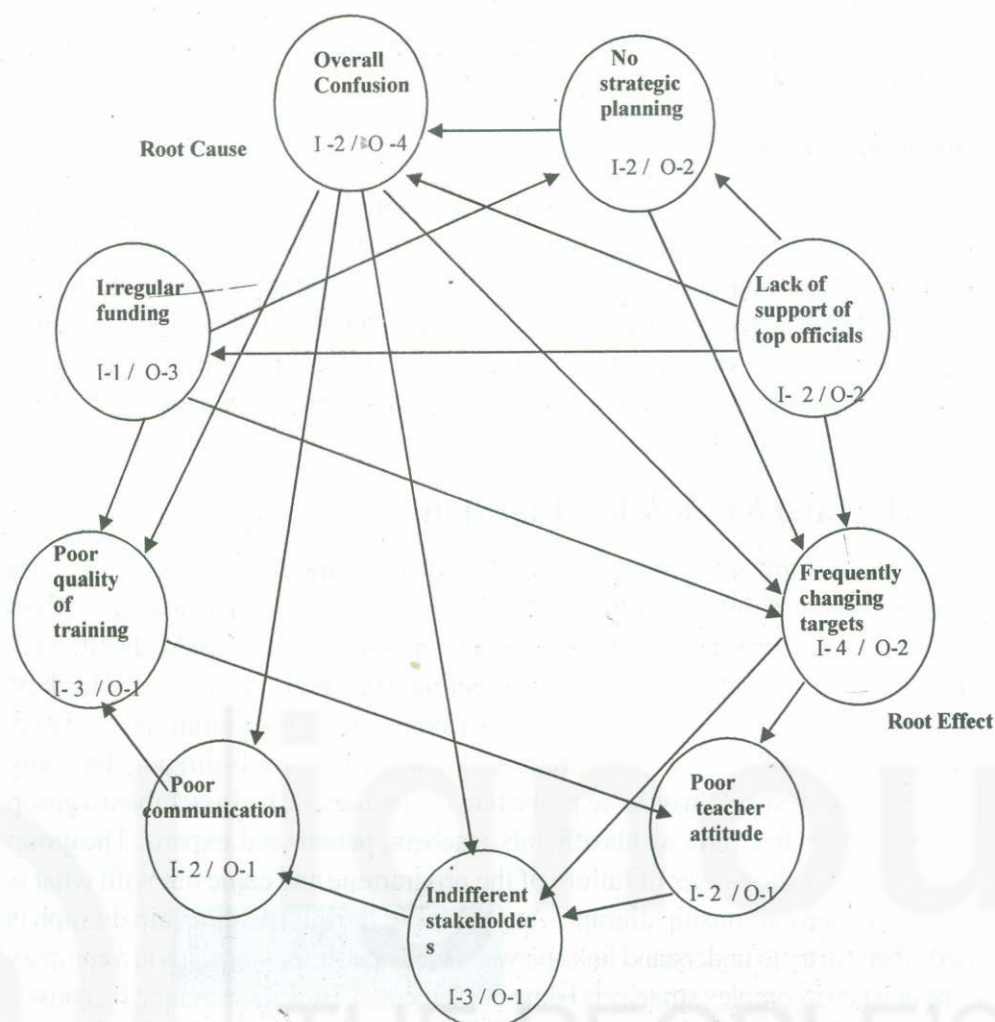


Fig. 17.12: Interrelationship Digraph of Barriers in Implementing School Improvement Programme

Educational uses: Because of its complexities in construction, it is less frequently used in educational planning. But with rapid expansion of education at all levels, more issues and problems are coming up. There would be more and more need for cause-and-effect analysis and hence the need for this tool.

17.6.5 Rader/Spider Chart

The District Education Officer of Nabarangapur, a district of Orissa, was reviewing the state of quality of primary education of the district. He wanted to have a holistic picture of the state of primary education of the district. Among other information on the status of primary education in the district, he found the following indicators of quality of primary education in his district:

Indicators	Percent
- Safe and well maintained school building	84.7%
- Availability of water and sanitation facility	83.9%
- Enrolment	94.9%
- Gender Parity Index of enrolment	86.0%

- Female teachers	37.3%
- Retention Rate (Cl. I to V)	61.6%
- Promotion Rate (Cl.I to V)	68.0%
- Transition Rate (Cl.V to VI)	41.9%

In order to have a holistic picture, the District Resource Group developed the diagram called the 'radar chart' (Fig. 17.13). From this chart we can have an estimate of the strong and weak areas of progress.

Quality of Primary Education in Nabarangpur Dist. Orissa in 2006-07

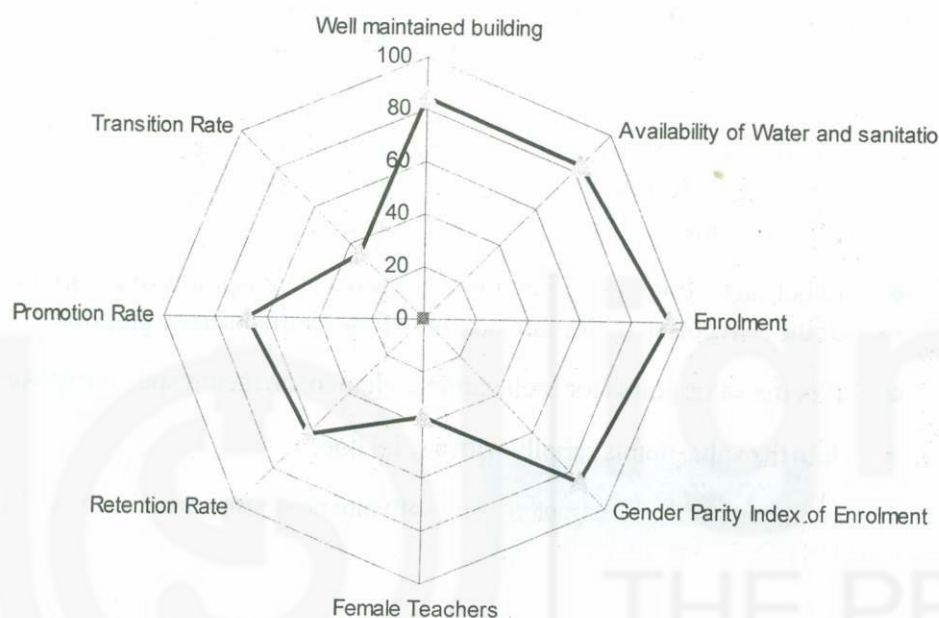


Fig.17.13: Radar/Spider Diagram of the Quality Indicators of School Education

The *radar* or *spider chart* is a planning tool that graphically displays the comparative values of multiple variables in a data set. Apart from radar and spider chart, this diagram is also known by several names : *web chart*, *star chart*, *star plot*, *irregular polygon*, *polar chart* or *kiviat chart*.

The chart consists of a sequence of equiangular spokes called radii (plural. of radius), with each spoke representing one of the variables. The data length of a spoke is proportional to the magnitude of the variable for the data point relative to the maximum magnitude of the variable across all data points. Points representing the data values are serially joined by straight lines which gives the plot a star-like appearance and the origin of the name of the plot.

The radar chart can be used for several purposes:

- Which variables are dominant?
- Which are weak areas?
- Which observations are most similar? etc.

Process of construction of radar chart: The radar/spider chart can be constructed using the following steps:

- i. Make a list of each category or variable in the data set to be displayed.
- ii. Collect the data for each category or variable to be displayed.
- iii. Construct the diagram :
 - Construct a regular polygon (whose side are of equal length) with as many sides(or angles)as the number of categories or variables you are including in the graph.
 - Draw lines from 'O' the center of the polygon joining the centre to the vertices of the polygon (these lines are usually called spokes or radii).
 - Label one of these spokes, preferably the vertical one, with the number that is equal to the maximum of the reported values. This will be the scale line.
 - Divide each scale line into equal segments matching the units you are reporting in. Repeat this for each spoke line. Draw lines to connect the corresponding scale points on each spoke serially.
 - Label each vertex (angular points or the outer end-points of the spokes) of the polygon with the name of one of the elements to be graphed.
 - Plot the value points for each variable/element on their respective spokes.
 - Join the value points serially with a solid line.
- iv. This graph can also be constructed using software programmes such as EXCEL, LOTUS1, 2, 3. and such other programmes.

Educational uses: The radar/ spider chart is useful in comparing the status of interventions at different stages of program implementation. It can further be used by district and state level authorities to have comparative picture of different regions in respect of different issues of educational programmes.

Examples of some uses of the chart in the management of quality of education are:

- Status of basic aspects of organisational climates of school in the state/district.
- Community perception of functioning of schools
- Academic performance by different groups of disadvantaged children.
- Comparing education districts on the major criteria of school effectiveness.
- Measuring status of schools within an education district on regular conduct of co-curricular activities.

17.6.6 Force Field Diagram

In the Sarva Shiksha Abhiyan, the activity approach of teaching-learning is being promoted in the primary schools. But a District Education Officer could not observe desired change in the classroom transaction processes in all schools in the district. He called a representative group of resource persons, teachers, parents, supervising officials and did a simple exercise. He explained the desired changes to occur in the classroom transaction and then asked the group to brainstorm on two issues: What are the forces /actions helping the efforts to change and those which inhibit or obstruct

the change. In summarising the outcomes of the discussion he isolated the two categories of responses and diagrammatically presented the summary. He produced what is known as 'force-field diagram'.

Force-field diagram or *force-field analysis* is a managerial tool used to identify the forces that either promote or inhibit change in the system. This is based on the field theory of Kurt Lewin, the 20th Century gestaltian psychologist. The basic premise on which this analysis rests is that change is the result of a conflict between opposing forces. While there are some who welcome change and are quite proactive, there are others who oppose the change because they are either too comfortable with the status quo or are afraid of the unknown associated with change. In order that change takes place, the driving forces must overcome the restraining forces. From the management point of view, the driving forces are to be reinforced and the restraining forces have to be countered, reduced or directed elsewhere.

Adoption of Activity-based Approach

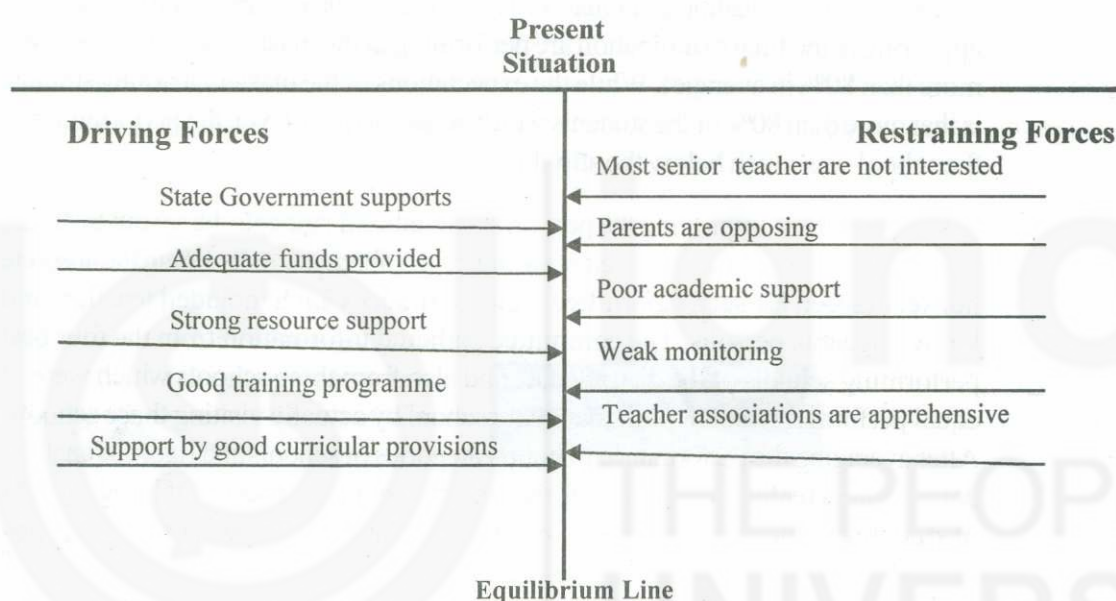


Fig.17.14: Force-Field Analysis of the Adoption of Activity-based Approach

Process of construction: Following steps are usually used to develop force-field analysis/diagram:

- Write the topic clearly at the top of the work space (flip chart or board) and draw lines underneath topic as in Fig. 14.
- On the top of the right half of the space write "Driving Forces" or "Forces For" and on the top of the left half write "Restraining Forces" or "Forces Against".
- Let the participants identify the key arguments/forces for and against the issue. Sometimes, the participants are divided into two groups – one group advances the arguments in favor and the other against the issue.
- When all forces have been recorded, the group or subgroups should review each of the forces/arguments listed and brainstorm on the ideas for strengthening the driving forces and reducing the restraining forces.
- Once an item is finalised draw an arrow underneath it with arrow head pointing to the middle vertical line.
- If the group members desire, then they can rank each force on both the sides in the diagram, rate those on difficulty to change, prioritising the actions to strengthen

the driving forces and reducing the opposing forces. Sometimes, the length of the arrow is made shorter or longer depending on their importance as indicated by ranking or rating.

Educational uses : For its relatively lesser complexity, it can be used in most of the situations. Some such situations in education. For example are as follows :

- Reducing incidence of early dropouts.
- Community involvement in school activities.
- Making High School Certificate Examination optional.
- Introducing competency-based evaluation.

17.6.7 Benchmarking

The principal of a school observed, while reviewing the performance of students in the final school graduation examination that during last three years 20% of the students appearing at the final examination are performing at the mastery level (i.e. securing more than 80% in average). While the expectations of the mastery learning strategy is that more than 80% of the students would attain mastery level, the performance of the school was much below the stipulated standards.

With the desire of improving the performance status of students, he set out by fixing annual targets for the next five years. He did not go about it blindly fixing the absolute mastery target. He set a committee eight members which included teachers and knowledgeable persons. The committee gathered information from the four best performing schools of the district/state and also from three schools which were of equal performance status with that of the school by actually visiting those schools. After averaging the performance of both categories of schools and rigorous analysis of the ground realities of the school, the committee fixed the target of bringing 60% of students to the mastery level of performance with average yearly increase of 12%. This process briefly describes the process of benchmarking.

Benchmarking, first developed by Rand Xerox in 1979, is a process of creating the best possible standard to emulate and to compare with others. The term 'benchmarking' was first used by cobblers to measure one's feet for shoes. They would place foot on a "bench" and mark the size of the feet to make the pattern for shoes. Also referred to as "best practice benchmarking" or "process benchmarking", it is a process used in management, and particularly in strategic management, an organisation evaluate their processes and compares those with similar processes of other organisations against an indicator or a set of indicators created as standard of performance. The process of benchmarking involves analysis of a situation by

- Identifying what the best to date is, what the average of the best is that has been accomplished in three to five other situations similar to yours, and what your situation is relative to the challenge; both realistic and stretch targets for the improvement objective can be established during this process.
- Visiting and studying systems and processes used by others that have been identified as being the best. (Latta & Downey, 1994, p.95)

Process of construction: There is no single benchmarking process that has been universally adopted. The first book on benchmarking process by Kaisar Associates of U.S.A. in 1988 suggested a 7-step approach. But there are others who have proceeded with 12-step approach. However, the following steps may be used for the benchmarking process in education:

- Identify the problem area to be benchmarked.
- Select a benchmarking team; usually 6 to 8 members who are well versed with the problem and some of them are thoroughly conversant with the benchmarking process.
- Train the group members in benchmarking.
- Identify the internal and external partners/customers involved in the problem.
- Identify institutions that are leaders in the area/district/state. Identify at least 3 to 5 best performing institutions in your district or districts similar in condition to yours.
- Let some group members visit those institutions with an action plan prepared earlier. Very keen observation, recording the conversations and photo-recording of different aspects and processes of the institutions are very much essential.
- Compare your institution's performance with those visited. Analyse, discuss, imagine creatively so as establishing far reaching, yet viable goals for improvement of your institution.
- Establish a target for the improvement objective, and establish annual milestones by which to gauge weekly, monthly and annual progress.

Educational uses : In education, all the situations can be benchmarked. With the implementation of national programmes of District Primary Education Project (DPEP) and Sarva Shiksha Abhiyan(SSA), benchmarking has become a regular practice while preparing perspective plans and annual work plans for every district. Therefore, a familiar process for district and state level functionaries. However, issues may be chosen depending on their importance and priority for benchmarking as the process requires quite a considerable amount of fund.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

5. Enumerate any three of newer quality tools that could be used for the pre-learning stage.

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6. What is interrelationship diagram?

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17.7 INTEGRATIVE QUALITY TOOLS

Besides the three group process tools, we have discussed about 14 tools which are, individually or in combination, used during pre-planning stage of total quality management. In this section we shall discuss about four tools which integrate many of the other quality tools which are essentially used in preparation of a plan and guiding implementation. The four integrative tools discussed in this section are:

- Action panning,
- Activity networks,
- Plan-do-check-act cycle, and
- Hoshin planning.

Let us discuss each tool for our understanding.

17.7.1 Action Planning

Action planning is a process utilised by a group to identify the essential components of an improvement plan and to document these components in the form of a formal plan.

Very often we see that good plans gets awry during implementation due to absence of any agreed upon action plan. Action planning is the process that guides the day-to-day activities of an organisation or project. It is the process of planning what needs to be done, when it needs to be done, by whom it needs to be done, and what resources or inputs are needed to do it. It is the process of operationalising your strategic objectives. Simply saying, it spells out in detail about the actions to be taken, the time schedule of actions, the required resources- both human and material, requirement of fund and the group or agency to perform the action. That is why it is also called *operational planning*.

Most action plans consist of the following elements:

- a statement of *what must be achieved* (the outputs or result areas that come out of the strategic planning process);
- a spelling out of *the steps that have to be followed* to reach this objective;
- some kind of time schedule for when each step must take place and how long it is likely to take (*when*);
- a clarification of who will be responsible for making sure that each step is successfully completed (*who*);
- a *clarification of the inputs/resources* that are needed.

All of these are dealt with again in *planning activities step-by-step*. If you go through an action planning process, then you should end up with a practical plan to enable you to resource and carry forward the steps needed to achieve your objective(s) a small and contribute to your long-term goal.

Process of developing an action plan: The action planning for an organization or a project can be developed by a group using the following steps:

- i. Constitute a small group consisting of 6 to 8 members. The group should be representative of those who have direct involvement with the problem.
- ii. Analyse the data relating to the problem utilising quality tools like brainstorming, affinity diagram, interrelationship digraph, force-field analysis and any other tools required. If the analysis has already been done, the group needs to review the analysed data.
- iii. Conduct an analysis of resources and constraints (may use force-field analysis).
- iv. Identify alternative solutions to the problem and select the quality characteristics to be used in determining which of the potential solution strategies the best is. Select the quality best possible alternative (may use matrix analysis).
- v. Identify and select activities for implementing the solution strategy (develop flow chart).
- vi. List activities in the sequence they must be completed along with the details of person/group responsible for action, resource needed, time schedule (starting and completion time), cost, and evaluation (outcome expected).
- vii. Finalise the review and follow up action programme.

The details of the action plan are usually reflected in a table. Different groups may develop the table as per their requirement. But it should be holistic, concise, and clear to the users/implementers. A sample plan is shown in Figure 17.15.

Result Area:					
Activities	Person/Group/Agency Responsible for implementation	Time Frame		Cost	Expected outcome
		Start	Completion		

Fig.17.15: Format for Activity Planning

Educational uses: As is evident from the foregoing discussion, activity planning involves use of multiple tools in planning for complex and composite issues. In education, in developing institutional plans, sub-district and district level plans for issues like school development, teacher empowerment, academic activities, community empowerment activity planning procedures can be employed for qualitative planning. Since it involves multiple tools and weighs all possible approaches/strategies, it is time consuming and cost intensive. Therefore, it should be used properly in planning selective issues having large coverage in terms of operational area, required time duration, magnitude of resource requirement and extent of expertise available.

17.7.2 Activity Diagrams

Complex projects require a series of activities, some of which must be performed sequentially and others can be performed in parallel with other activities. This collection of series and parallel tasks can be arranged to form a network of activities. An *activity network* is, therefore, a model showing the tasks that need to be accomplished in order to get a job completed. The tasks are arranged in a sequential manner beginning from the starting point and ending at the finishing point indicating the completion of the job. The network also shows time required for completing each activity. The activity network is used when :

- Planning any project or activity which is composed of a set of interdependent actions/tasks.

- Time, costs, and quality are important factors and tasks related to the job must begin and finish in a specific sequence and in a timely fashion.
- It is required to calculate the earliest date the job can be completed and the ways of changing this.
- It is required to identify and address risk to in completing a project in time.
- Group members are required to be communicate the process of the programme of action to others.
- Monitoring the progress of the activities at any point of time while the project is under way is required..

Broadly there are two categories of network diagrams:

- Bar chart or gantt charts
- Arrow diagrams, also known as PERT charts

Gantt charts Of the two categories of network diagrams, Gantt chart is simpler to understand, and construct. Let us take a hypothetical job having seven interdependent tasks (A,B,C,D,E,F, ,and G) and the time required for completing each task given is shown in the following table. Further, since the tasks are interdependent, the immediate predecessors have also been given.

From the chart we can easily see that the tasks A,B,and C commences from the start at a time simultaneously. And the tasks E and F commence only after completion of taskB.

Table 17.7.2 Tasks of the Project

Task	Duration (in months)	Immediate Predecessors
A	3	-
B	4	-
C	6	-
D	5	A
E	1	B
F	6	B
G	7	C,D,E

Using the data in Table 17.7.2 the Gantt Chart has been drawn which is shown below:

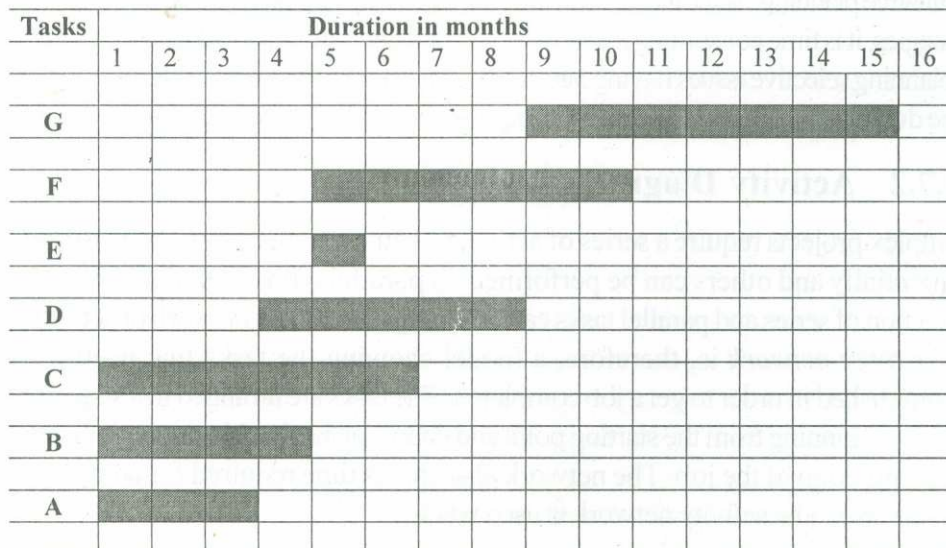


Fig. 17.16: Gantt Chart of the Data given in Table 17.7.2

Arrow diagrams: The arrow diagram or the program evaluation and review technique (PERT) is a network model that demonstrates a more integrated picture of interdependencies of the activities. PERT was developed in the late 1950s for the U.S. Navy's Polaris project in which thousands of contractors were engaged. It has the potential to reduce both the time and cost required to complete a project. An example of a simple PERT chart based on the data given in the Table 17.7.2 is in Fig 17.17.

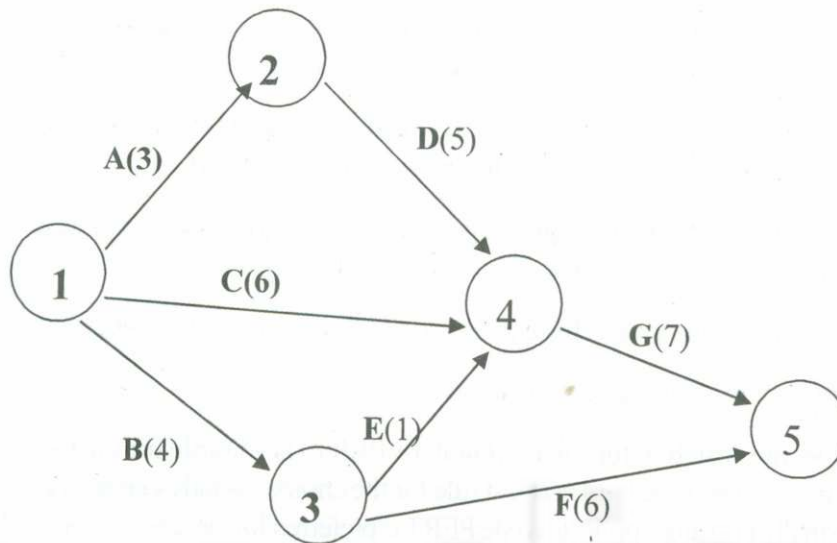


Fig.17.17: PERT Chart for Data in Table 17.7.2

Now let us understand the PERT chart more closely.

- The diagram is consisted of *arrows* and *nodes or milestones* (indicated by circles). An arrow indicates an activity or work that consumes time, money or resources. Although the arrow represents flow of time (left to right) it is not drawn to scale and hence its length is not proportionate to the amount of time or difficulty of the task.
- The point indicating the completion of one task and commencement of the next immediate successive task is called a node, a milestone or an event and is usually indicated by a circle or a box within which the number indicating the event is displayed.
- An event or activity is unique and can occur only once in a network.
- All work flow is from left to right; therefore, looping backward or forward is not possible.
- Two events cannot be connected by more than one activity (arrow)
- Paths in a network are identified by the events through they pass. In the Fig. 17 there are four paths as follows:
 - i) $1 \rightarrow 2 \rightarrow 4 \rightarrow 5$
 - ii) $1 \rightarrow 4 \rightarrow 5$
 - iii) $1 \rightarrow 3 \rightarrow 4 \rightarrow 5$
 - iv) $1 \rightarrow 3 \rightarrow 5$
- Events and activities serve as constraints on succeeding events and activities. For example, activity G cannot begin until all the three preceding activities C,D and E have been completed.

- The path that takes the longest time (adding the activity time of the activities on the path) is called the *critical path*. For example, in the Fig. 17.17 the path indicated by $1 \rightarrow 2 \rightarrow 4 \rightarrow 5$ takes 15 months to be completed which is the maximum time taken by any of the rest three paths, and thus it is the critical path for the project under consideration. The critical path determines the minimum time required for project completion.

Process of construction of arrow diagrams: For the construction of both the Gantt and PERT charts the following steps are used:

- i. Constitute a small group of 4 to 6 teachers who possess adequate knowledge of the project and will be involved in implementation.
- ii. Let the group brainstorm and identify all the component activities/tasks/milestones of the project that must be undertaken and completed.
- iii. Determine the proper sequence of the activities clearly specifying the immediate preceding activity or activities of each activity.
- iv. Decide on the unit of time to be used (i.e., hours, days, months, etc.).
- v. Estimate the time to complete each activity.
- vi. Decide which of the charts (Gantt or PERT) is suitable for the requirement. While there is no hard and fast rule for the choice, usually Gantt is preferred for small or medium projects while PERT is preferred for large and complex projects.
- vii. Draw the required activity network diagram.
- viii. Discuss in the group and finalise the diagrams.

There are numerous variations in the form and analyses of the network diagrams depending on the level of complexity of the project and hence, construction procedures also vary accordingly.

Educational uses of arrow diagrams: Activity networks can be used whenever planning is required for any activity. Preparation of annual district plans of education for different levels, Arranging co-curricular events like sports events, competitions, celebrations, annual scheme of academic activities, conducting examination are some activities, for example, planning for which the activity network shall be of great use. It not only helps in implementation of activities, it also helps in monitoring the activities in time.

17.7.3 Plan-Do-Check-Act (PDCA) Cycle

The *Plan-Do-Check-Act (PDCA)* cycle as per its title is a four step process when combined with full use of other quality tools, is a power tool of total quality management. It is easily understood and also easy to use tool. All the types of basic tools can be used to complement and strengthen the utility of this tool. While the tools discussed so far are either used at the pre-planning stage and/or at the planning stage, PDCA is useful both at the planning and implementation stages. Further it has possibly widest range of use in the sense that it can be used in the simplest of problems to the most complex problems.

The PDCA was made popular by Dr. Edward Deming, regarded as the quality guru of the Total Quality Management (TQM) movement. He used to refer it as *Schewart Cycle*. Later he modified PDCA to Plan-Do-Study-Act (PDSA) cycle.

The following are the steps for developing the PDCA cycle:

- i. Form a small group with 6 to 8 members who have knowledge and familiarity with the project and a few with the knowledge of PDCA cycle.
- ii. Let the group match the planning process with the requirements and complexity level of the identified problem.
- iii. Start with the activities of PDCA cycle. At each step the group has to combine different quality tools depending on the context and complexity of the problem.
 - **PLAN** : Analyse and modify the problem if necessary. Decide or improve previously decided targets and objectives. Assess the availability of resources and plan for it. Collect and analyse data and prepare the plan or develop an improvement plan using appropriate quality tools. Prepare in advance the schedule and tools for monitoring.
 - **DO**: Implement the plan with continuous monitoring. Always refer to baseline data while monitoring. Make minor adjustments wherever needed.
 - **CHECK**: At regular intervals determine the progress made with reference to targets fixed. Document that you have learnt about the supporting system, procedures and processes.
 - **ACT** : The group along with the functionaries of the organisation is to decide together as to whether abandon the strategy, modify it, strengthen it, or continue without any modification.
 - **PLAN**: After the completion of one full cycle update the plan based on the lessons learnt and then continue with the cycle.

Educational uses of PDCA cycle : The PDCA cycle can be used in planning and implementing any strategy in education. In all the issues that have been given under the use of previous tools, PDCA can be usefully employed.

With focus now shifting to quality education, it becomes imperative to use a process so that planning, implementation, monitoring and suitable modifications at appropriate moment of the programme implementation can be taken care of continuously. This is precisely the hall mark of the PDCA cycle.

17.7.4 Hoshin Planning

Hoshin planning is based on the philosophy of focusing on doing the one thing for achieving the long term vision or improvement activity. The Japanese words *hoshin* meaning shining metal, compass, pointing the direction; *kanri* means management and direction, management where as the words *nichijo kanri* can be interpreted as daily (fundamental) management for the entity/organisation. Thus, *hoshin* process is a systematic planning methodology for defining long-range key entity objectives. These are breakthrough objectives that are long-range typically extend two to five years with little change. (*Breakthrough* objective is that which aims at a radical and dramatic improvement in one or more organisational competency.) Second the *hoshin* process does not lose sight of the day-to-day 'fundamental' measures required to run the organisation successfully (Kenyon, 1997).

The Hoshin Kanri was first developed by Dr. Yoji Akao, a Japanese planning specialist in early 1970s and Hoshin planning process was first introduced in Hewlet Pacard

Company of USA in 1976 and produced instant success. Hoshin process has the following underlying beliefs:

- It is better to do one priority thing right the first time rather doing numerous low priority things right. 'If everything is a priority, then nothing is.'
- Rather be proactive and empower and excite every one in your organisation rather than be reactive and continue to do similar things.
- Create a community of learners and leaders rather than continuing with stereotypes.

In other words, Hoshin believes in continuous quality improvement with determination rather loosing in doing several things in a routine manner.

Process of Hoshin planning: Hoshin planning process is useful in developing a new strategy or modifying the existing strategy using the following broad steps:

- i. Establish a customer-focused vision by collating the input and involvement of representatives of all stakeholder groups.
- ii. Let a focus group identify, analyse, and select one or two top priority problems that are solvable.
- iii. Take one or two problems and benchmark them.
- iv. Analyse alternative solutions that have strength in realising the breakthrough objectives.
- v. Review the existing policies and strategies in relation to attaining the breakthrough objectives.
- vi. Hold a series of free and open discussion, brainstorming sessions with the
 - representatives of all possible stakeholders regarding the targets, solution strategies, and policies and regulations for implementing them. The process continues till representatives from all sections of stakeholders have been involved.
- vii. With the lessons learnt from the above exercises, follow PDCA process in order to develop plan- at least an annual plan and if there is more interest a five year perspective plan.
- viii. Continue with PDCA cycle till the improvement targets have been met.

Briefly, the Hoshin process emphasizes on:

- Breakthrough objective focus.
- Development of plans that adequately support the objective.
- Continuous improvement through incorporation of PDCA cycle.
- Involvement of all stakeholders.
- Communication.

Educational uses: Like the PDCA, Hoshin planning, its principles and concepts can be useful in any educational setting or organisation which is seriously engaged in continuous quality improvement.

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

7. List four integrative tools which are individually or in combination used during the pre-planning stage.

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8. What is action planning ?

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17.8 LET US SUM UP

Three categories of quality tools have been discussed in this unit. They are group process tools, basic quality tools or statistical processing tools, and integrative tools. The three basic tools that have been discussed here can be used as preparatory processes for any other basic tools. Among these three tools, while brainstorming and nominal group techniques are more open and free flowing, focus group discussion is more structured and is widely preferred in solving educational problems.

The seven basic tools – histogram, Pareto charts, scatter diagram, trend or run chart, control chart, cause-and-effect diagram and flow chart- are basic in nature that each tool provide vivid and accurate picture of actual picture of educational issues. Besides, these tools help the educators in identifying the real issues, focus on specific issues and help to diagnose and evaluate key problems of education. The visuals in shape of graphs and diagrams help common users to understand the intricacies of the issues involved.

- The seven newer type basic tools – affinity diagram, tree diagram, matrices, interrelationship digraphs, radar/spider chart, force-field diagram and benchmarking extend the scope of analyses of the earlier basic tools. These are mostly used as the pre-planning tools and provide more and qualitatively better insights into the issues.
- The four integrative quality tools – action planning, activity diagrams, plan-do-check-act (PDCA) and Hoskin Planning are composite and integrate several basic tools and group processes in order to make educational planning more comprehensive. While all the four tools are essentially planning tools, these tools can also be used for implementation, monitoring and evaluation especially the last two tools combine all these functions..

17.9 UNIT END ACTIVITIES

1. Discuss the relevance of tools of management in the context of total quality management in an educational institution.
2. Select any integrative quality tools and discuss its relevance in the context of an elementary schools.
3. Discuss the role of pre-planning tools in TQM in a college setting.

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1.
 - a. Brainstorming
 - b. Nominal Group Techniques
 - c. Focus group discussion
2. Brainstorming has all the potential of generating ideas for bringing about continuous development of educational system and process at all levels. Some examples of the educational problems require brainstorming for generating solution are :
 - a. What is the method of recruiting effective teachers for the elementary schools of the state?
 - b. How to ensure regular attendance of all enrolled children in school ?
 - c. Strategies for enhancing community involvement in school activities.
 - d. Ways of improving quality of learning achievement of students.
3. There are seven basic tools, these are :
(a) Histogram, (b) Pareto charts, (c) Scatter Diagram, (d) Trend charts, (e) Control chart, (f) Cause-effect diagrams, and (g) Flow charts.
4. A Pareto chart is a type of chart which contains both bars and a line graph. The bar display the value in descending order, and the line graph shows the commutative totals of each category, left to right. The chart was name for Vilfredo Pareto.
5.
 - i) Affinity diagram
 - ii) Tree Diagram
 - iii) Matrices
 - iv) Inter-relationship Diagram
 - v) Rader/ Spider Chart
 - vi) Force- field Diagram
 - vii) Benchmarking
6. The interrelationship diagram also called relation diagram, network diagram, is a planning tool that shows in practical form the cause-and effect relationship among the elements of a problem or issue.
7. The four integrative tools are:
 - a. Action planning
 - b. Activity network
 - c. Plan-do check-act cycle, and
 - d. Hoshin Planning
8. Action planning is an process utilised by a group to identify the essential components of an improvement plan and to document these components in the form of non plan. Most action plan consist of the following elements.

- a statement of *what must be achieved* (the output or result areas that come out of the strategic planning process).
- a spelling out of *the steps that have to be followed* to reach this objective;
- some kind of time schedule for when each step must take place and how long it is likely to take (*when*);
- a clarification of who will be responsible for making sure that each step is successfully completed (*who*);
- a *clarification of the inputs/resources* that are needed.

UNIT 18 STRATEGIES FOR QUALITY IMPROVEMENT

Structure

- 18.1 Introduction
- 18.2 Objectives
- 18.3 Strategies for Total Quality Education
 - 18.3.1 Clarifying purpose and mission
 - 18.3.2 Structure through systems thinking
 - 18.3.3 Building interpersonal relationships
- 18.4 Implementing TQM in Education
- 18.5 Let Us Sum Up
- 18.6 Unit End Activities
- 18.7 References
- 18.8 Answer to Check Your Progress

18.1 INTRODUCTION

Quality, equality and quantity have constituted the elusive triangle of Indian Education System. Of the three, while issues of equality and quantity are considered as external to education, quality is most central to all forms of education. Any education without quality is no education at all: it will not be able to fulfill its promises and will also do immense harm (Naik, 1975).

Since independence, India has made significant progress in all aspects of education; particularly the quantitative expansion of education at all the level has been quite phenomenal. But, the quality of education continues to be the matter of concern. Caught between the individual and social aims of education, the quality considerations focused more on teacher and subject- centered approaches relying heavily on the teacher centred approach of school and classroom management. The student was expected to be a passive receiver of the instructions. Emphasis was given on the product rather than on the process of education. The quality of education is mainly assessed by the outcomes and rarely by the processes.

In the changed scenario the facilitation of learning is more important than directly imparting information to the learners. Therefore, quality of education depends on the type of educational management that nurtures, facilitates and sustains the quality of learning. In this context, the implications of the total quality management (TQM) in education are worth studying.

You have already studied about quality education in the earlier unit. In this unit, we shall discuss the strategies to enhance quality of learning through the principles of TQM.

18.2 OBJECTIVES

After going through the Unit you should be able to :

- list different strategies for quality improvement in education.

- aware of the role of strategies for quality education.
- discuss the different strategies of ensuring quality education.
- describe the processes of implementing quality education programmes.

18.3 STRATEGIES FOR TOTAL QUALITY EDUCATION

As is clear in the Downey's Quality Fit Framework, (Refer sub-section 16.13.4) the strategy building for the total quality management in education involves three basic aspects and they are :

- Stating clearly the purpose and mission of the organization.
- Ensuring proper structural characteristics with system thinking.
- Establishing strong relationship among all stakeholders.

We shall discuss all the three basic aspects in the following sub-sections:

18.3.1 Clarifying purpose and mission

The first step needed to initiate the total quality management in an organization is to clarify the purpose and mission for which the organization is created. In this context four quality premises have to be addressed: focus on the customer, shared mission and vision, constancy of purpose, and continuous improvement. Let us discuss each premise in details.

i. Customers and their needs : In any organization, the customer is the most important person who needs our careful attention. Customers should not be considered as interruption in our work.

In a school, for example, a teacher's customers are students whereas he/she is a customer of the principal. In the traditional framework, students serve the teachers who work for the principal. But, in the quality fit framework this sort of organization is just the reverse of traditional framework. Students are our primary customers. You can not conceive an educational institution without the students. Any educational activity conducted in schools is meant to serve the students' needs. Similarly, the teachers' main customers are students closely followed by their parents. Again, teacher is a customer of the principal who in turn is a customer of the district education officer or management.

School as an organization has both internal and external customers depending on whether they are within or outside the school system. Besides students as the prime customers, parents, teachers, support staff, administration authorities, etc., are the internal customers of the school. Students as adults, institutions of higher education, vocational or technical institutions, business and industry are some examples of the external customers of the school.

In the framework of the total quality management the customer is the boss in both the top-down or bottom-up approaches. The involvement of the customer in the management is important. The customers are involved in partnerships, setting, giving real-time feedback, and allocating resources. Since students are our most important customers, meeting their needs is our first and foremost responsibility. To serve them effectively, we should know them thoroughly :

- (a) Who are our customers?
- (b) What our customers want?

- (c) How well we are meeting their needs? and
- (d) How we are improving the ways we meet these needs?

One way of maintaining the customer focus is, as Kano suggests, enhancing the quality of the organization, i.e. the school or any educational institution in our case (Lillrank & Kano, 1989). He points out that quality is defined by customers' expectations and excitement. When our need are met beyond the expected level, we feel excitement which has immense multiplier effect. If our students are excited about being in our schools and experience joy in their learning and the teacher feel satisfaction and happiness in their work, then it is easier to sustain quality of our education system.

Through we are more concerned with needs of our customers, it is also important to take the needs of the service providers or suppliers into consideration. As you know, each of us is a customer at the same time a supplier. For instance, a teacher is a customer of the principal or the district education officer while acting as the main supplier for the students. In the quality movement, we have to help our suppliers to help us in meeting the customers' needs. This is rarely done in the existing school environment. For instance when we are unsatisfied or disgruntled with a product or service being provided, how often do we help that supplier to serve us meet our needs better? When suppliers are not meeting our needs, spending time to help them may be beneficial to us in the long run.

ii. Shared mission and vision: In the total quality framework every organization must have its mission and vision to achieve. The mission statement expresses our intent with our customers and draws the focus of our actions. A mission statement of an educational organization may have four basic elements. They are as follows:

- Who are the customers of the organization (who receives the service)?
- Who delivers the service to the customers (who are the suppliers)?
- What is the purpose of our service (what customers' needs are met)?
- What are the basic means to achieve our purpose (how do we achieve the service or product)?

From the above stated basic elements we can say that a mission statement of an educational organization describes the aims, general actions to achieve those aims and criteria for making the choices for actions. A mission statement is achievement-oriented which we try to accomplish for our customers, the students. Each institution, department, professional group and even individual in the organization need to have separate mission statements.

Sample Mission Statements

- It shall be the mission of the school to develop the skills, attitudes, and motivation in our students using contextual materials and experiences so that they will become responsible citizens and be capable of making positive contributions to society.
- My mission is to offer instructional leadership that provide experiences that facilitate the growth of each student to fulfill the district mission.

Once a mission is established, then a vision is needed to make the mission an ever-evolving reality realizing the ever-changing nature of the customers' needs. Visions look beyond what we are doing today to what we want to be doing in the future.

Visions are about imaging the future to create new possibilities. A vision statement includes the following:

- Where do we want to be in future?
- What will we look like at that time?
- What will we be doing differently?

Sample Vision Statement

- Shahid Memorial School is dedicated to providing the highest quality educational program with the cornerstones of value learning, self-worth among students and staff, quality performance among students and staff, and transition for students to a productive and responsible participation in society at large.
- Five year from now, the district is committed to bring all out of school children within the school going age to the schools through massive community involvement and ensure quality education to all.

Although it is relatively difficult task to help others to develop shared vision statements, it is worthwhile to have such participation in developing visions for the organization. It develops ownership of the vision and can inspire all concerned have a distinct course of action as they move to actualize their vision. Institution's vision, therefore, need to be collaborative with direct involvement of all stakeholders. The task of synthesizing multiple vision directions in a collaborative effort requires six leadership qualities. They are as follows:

- *Foresight*, so that we can determine how the vision fits into the evolving school environment in future.
- *Hindsight*, so that the vision does not violate the traditions and culture of the society around the school.
- *A worldview* within which to interpret the impact of possible new developments and trends.
- *Depth perception*, so that vision can be seen in appropriate detail and perspective.
- *Peripheral vision*, so that the possible responses of stakeholders to a new direction can be comprehended.
- *Revision*, so that all visions previously synthesized are constantly reviewed as the environment changes.

(Downey et al., 1994 pp.42-43)

Shared vision is more important in the sense that it binds all stakeholders together around a common identity and sense of destiny (Senge et al., 2000).

iii. Constancy of purpose. Deming (1982) in the first of his famous 14 points advocated to create constancy of purpose toward the mission of the organization (school system). After the mission statements are finalized in an organization, it is important to reflect the statements in our action or plans. Keeping the mission alive is more difficult than creating a mission statement. It helps in focusing the energy of staff members. Having a sense of mission or constancy of purpose means each member of the staff is passionate about the aim of the organization and a commitment to ensuring that decision.

Downey (1993) suggests several strategies for maintaining a constancy of purpose towards the mission:

- Ask in every situation whether this action, activity, thought, or behavior contributes in some way to assign value to our students and their learning.
- Have staff members and other stakeholders answer the question for each decision point of how the decision facilitates the fulfilling of the mission.
- Search out opportunities in all discussions to coach and influence others to think about and act on the mission.
- Revisit the mission and vision statements regularly to revitalize employee commitment, and have individuals check their work groups and their own activities for alignment with the mission.
- Have all work groups prepare and review mission statements in alignment with the system mission-groups such as administration, management, teams, teaching faculties, department staff, grade-level groups, and interdisciplinary teams.
- Have groups identify critical success factors that will create opportunities to bring about the mission and vision.
- Orientation of new employees for preparing their own mission and vision statements. Place mission statements in documents such as yearly targets, annual reports, newsletters, letter heads, and name cards;
- Critique agendas for meetings for value to the mission. Debrief meetings and ask whether the discussion and the proposed actions helped us to reach our mission and vision.
- Ensure that management board meetings start with a focus on learning and the student performance activities of work groups are in line to the mission and vision.
- Establish yearly process goals and strategies tied to the mission and vision.

Of all the strategies, the most important is the way the main or core educational leaders express their belief and personal commitment to the organization's mission and vision. This behaviour would influence others to a great extent.

iv.. Believes in continuous improvement : In Downey's Quality Fit Framework, continuous improvement or as many experts term it as 'continuous quality improvement (CQI)' is a powerful idea that recognizes change as a continuous process and accordingly quality improvement is also a continuous process. CQI is an approach to quality management that builds upon traditional quality assurance methods by emphasizing the *organization* and *systems*. It focuses on "process" rather than the individual; it recognizes both internal and external "customers"; and it promotes the need for objective data to analyze and improve processes.

Deming's fifth of his 14 points is to improve constantly and forever the system . *Constantly* and *forever* are the two key words on which he stressed. For him quality is a never-ending journey. CQI is a management philosophy which contends that most things can be improved. This philosophy does not subscribe to the theories that "if it ain't broke, don't fix it." At the core of CQI is serial experimentation (the scientific method) applied to everyday work to meet the needs of those we serve and improve the services we offer. CQI requires that we need to change our mental models constantly (Senge, 1990). Mental models or paradigms are the way we set

rules or regulations that define our thinking. Some of the paradigm shifts that quality brings to school system are as follows.

CQI PARADIGM SHIFT

OLD PARADIGM	NEW PARADIGM
Technology/machine resources	People as valuable resources
Narrow tasks, simple tasks	Broad tasks, multiple skills
External control: mandated procedures	Self-control: teams and Departments
Hierarchical, autocratic style	Flat organizations, participative style.
Competitive	Cooperative
Alienation: "It's only a job"	Commitment: "It's my job"
Low risk taking	Challenge, creativity, and high risk taking
Maintain the status quo- don't rock the boat	Continual improvement and innovation
Avoid or resist change	Stay on top of change

Core concepts of CQI: The following are the core concepts of CQI:

- Quality is defined as meeting and/or exceeding the expectations of our customers.
- Success is achieved through meeting the needs of those we serve.
- Most problems are found in processes, not in people. CQI does not seek to blame, but rather to improve processes.
- Unintended variation in processes can lead to unwanted variation in outcomes, and therefore we seek to reduce or eliminate unwanted variation.
- It is possible to achieve continual improvement through small, incremental changes using the scientific method.
- Continuous improvement is most effective when it becomes a natural part of the way everyday work is done.

Core steps in continuous improvement : We shall follow certain steps to ensure continuous improvement of quality of education. The main steps are as follows:

- Form a team that has knowledge of the system needing improvement.
- Define a clear aim.
- Understand the needs of the people who are served by the system.
- Identify and define measures of success. Find the best practices in your district or institution and set that as a benchmark for others.
- Brainstorm potential change strategies for producing improvement.
- Plan, collect, and use data for facilitating effective decision making.
- Apply the scientific method to test and refine changes.

Shewart's Plan-Do-Study-Act (PDSA) or its popular variation Plan-Do-Check-Act (PDCA) is the most widely used basic model for CQI. Each step can be

improved with process charts, data charts, and team brainstorming. Following this simple model we can implement any CQI programme effectively. (For detail please refer to section 17.7.3 of Unit 17).

18.3.2 Structure through systems thinking

The quality movement has based in systems thinking, a powerful concept, into the educational management. A system is a dynamic and complex based entity, interacting as a structured functional unit. Senge, defines a system as “any perceived whole whose elements ‘hang together’ because they continually affect each other over time” (Senge et al., 2000). Deming (1991) is of similar view and described it as “a network of functions or activities within an organization that works together for the aim of the organization”.

The word “system” is derived from the Greek verb *sunistanai* which originally meant “to cause to stand together.” As this origin suggests, the nature of a system includes the perception with which the observer causes the system to stand together. Within every educational district, community, school; or classroom, we can notice dozens of systems: the policy of opening of schools, deployment of teachers, school governance, curriculum development, management of school discipline, conduct of examinations are all examples of systems functioning. In this consideration, as Senge et al. (2000) state, “every child’s life is a system, and every educational practice is a system” (p.78). This statement is in accordance with the philosophy of the quality movement.

Skyttner (2006) summarizes the main characteristics of a system:

- Interdependence of objects and their attributes - independent elements can never constitute a system.
- Holism - emergent properties not possible to detect by analysis should be possible to define by a holistic approach.
- Goal seeking - systemic interaction must result in some goal or final state.
- Inputs and Outputs - in a closed system inputs are determined once and constant; in an open system additional inputs are admitted from the environment.
- Transformation of inputs into outputs - this is the process by which the goals are obtained.
- Entropy - the amount of disorder or randomness present in any system.
- Regulation - a method of feedback is necessary for the system to operate as per expectations.
- Hierarchy - complex wholes are made up of smaller subsystems.
- Differentiation - specialized units perform specialized functions.
- Equifinality - alternative ways of attaining the same objectives (convergence).
- Multifinality - attaining alternative objectives from the same inputs (divergence).

Systems thinking is the ability to understand (and sometimes to predict) interactions and relationships in complex, dynamic systems: the kinds of systems we are surrounded by and embedded in (Senge et al., 2000). System approaches require changes in the usual thinking from:

- Straight line to circular causality.
- Independent to interdependent relationships.
- External to internal focus.
- Knee-jerk, short-term, fragmented problem solving to proactive, long-term, holistic solution seeking.
- Thinking something is wrong with a person to acknowledging a problem in the system.

Peter Senge of the Massachusetts Institute of Technology (MIT) has been the most influential contributor to the study of systems and systems thinking. He points out several important ideas regarding systems thinking:

- The world is independent and dynamic with multiple events happening simultaneously.
- The focus of systems thinking is on patterns of events and the structures generating behavior.
- The most important effects are often delayed.
- The emphasis needs to be on internal locus of control of people and leadership in terms of influence.
- In solving problems, there are no final right answers, but there are better answers. (Senge, 1990)

Senge et al. (2000) suggests that systems thinking is shaped by four components:

- i. **Events: What just happened?** Critical event or events that engage us for finding a solution is the starting point of the process of system thinking. Quick responses to these events are not the solution to the problem, because they only constitute the tip of the iceberg of the major portion of which remains hidden from the sight.
- ii. **Patterns/Trends : What's been happening?** What is the history of the event that has just taken place? We have to study the pattern of the system behavior and the trend of events for quite a long period which may throw light on the nature of the real problem.
- iii. **Systemic Structure : What are the forces at play contributing to these patterns?** Solving the problem means changing the pattern of events that are indicative of the problem to grow to the present state. Behind each pattern of behavior is a systemic structure – a set of unrelated factors that interact, even though they may be widely separated in time and place, and even though their relationships may be difficult to recognize. When studied, these structures reveal the points of greatest leverage: the places where the least amount of effort provides the greatest influence for change. These are not necessarily the points of highest authority; they are the places where the ingrained channels of cause and effect are most susceptible to influence.

Many of these systems have developed over time as the result of habitual approaches to chronic problems. Study of the patterns would bring such unintended yet influential structures to the fore.

- iv. **Mental Models: What about our thinking that allows the situation to persist?** Systems often take their shape from the values, attitudes, and beliefs

of the people in them. That's because our mental models, our theories about the way the world works, influence our actions, which in turn influence the interactions of the system.

Each element of the systemic structure is based on a set of attitudes and beliefs. Some of them have remained unchallenged, even though they are misleading or counter productive, because they are unseen. Bringing them safely to the surface and inquire about them is a significant part of systems thinking.

- **Focus on optimization:** Close to the concept of systems thinking is optimization of organizations' functioning. Deming (1991) emphasized that in order to obtain quality the system must be optimized i.e. to perform at its highest possible level. During the process of optimization not all departments or divisions in an educational organisation or an education system can be optimized. He believes that it is the obligation of the department or division in the school system to contribute its best to the system, not to maximize its own production or service. Some components of an education system may need to operate at a loss to optimize the entire system. Optimization for everyone should be the basis for negotiation between any two people, divisions, or groups in the education system.

There are many examples of how optimization and sub-optimization can work in an educational system. For example, for giving more time for learning in the school or college, the availability of classroom time is optimized while other activities like sports and cultural functions are suboptimized at times. To achieve this, the institution can take a number of steps for further optimizing several components while suboptimizing other components of the system.

Once the faculty members and others realised that not every unit can be optimized, they will identify numerous areas where they can begin to work. The key is to determine what they wish to optimize.

- **School as a rational organization:** A rational organization is one in which the activities of the institutions are related to its goals and one that is able to relate internal activities to its purposes (English, 1987). Any institution desirous of maintaining quality need to be a rational institution. Are our schools, colleges or other educational organisation fall into the category of rational institutions?

The goals of most of our schools are nebulous because of various reasons, one being that the groups that control schools desire ambiguity as a matter of continuing to control them thus perpetuating the irrationality of the schools. A rational education system establishes long-range plans for movement toward system's mission and vision. Such plans will have the following minimal components:

- **Mission:** General purpose, beliefs, and educational goals of an educational organization on which all programmes and services are built.
- **Critical analysis :** Collection and analysis of vital data of all facets of the organization which is used to define the status and future of the organization.
- **Assumptions :** Assumptions about the visions of institutions in future are helpful in bridging the gap between needs and action goals in the planning process.
- **Components:** Means of grouping goals for the purposes of communication and management.
- **Objectives:** Statement of results that are measurable and that have time constraints. Objectives are written for each goal. As objectives are attained, goals are accomplished.

- **Evaluation :** Each objective should be evaluated and the evaluation procedures should be developed at the time the objective is written.
- **Action plans:** Actions to be taken that will help achieve the objectives: Each objective will have one or more activities.
- **Monitoring:** Systems for assessing the status of activities, analyzing the results, and reporting outcomes.
- **Stakeholders' involvement :** All stakeholders in a system are represented in the plan development.
- **Linkage documents :** All documents in a system are aligned to the plan.
- **Establishing integrated webbed structure :** This systems thinking process is also influenced by the type of organizational structures. In the traditional education systems the organizational structure is hierarchical as shown in the figure 18.1 below.

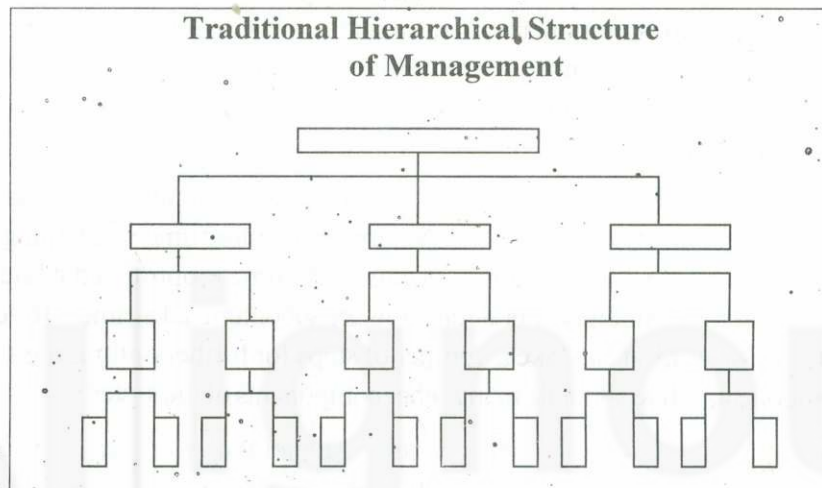


Fig.-18.1 : Traditional Hierarchical Structure of Management

Hierarchical structures is usually top-down in command, disconnected and fragmented.

In such a structure, the levels of employees or institutions are well defined and the flow of communication is from one level to the next immediate level (higher or lower). Such a system of management levels creates barriers for free flow of information and free interaction among employees at different levels is not easy. Hence, involvement and commitment of the stakeholders are rarely ensured. Most of our educational organisations and even education system use hierarchical system that is typically paternalistic and dependent.

Senge(1990) suggests an integrated, webbed organizational structure. Such structures are fluid and share power(figure 18.2). Irrespective of one's position in the system , he/she can share and communicate freely with any other members of the organization to solve problems.

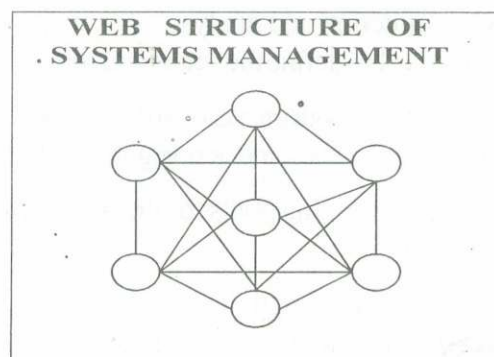


Fig. : 18.2 : Web Structure of Systems Management

There are several advantages of the integrated web structure. Important among them are as follows:

- Flexibility without lowering morale- people are not primarily concerned with rank and position.
- One can serve in various teams without worrying about whether the assignment is appropriate to status.
- The inclusive, webbed structure takes full advantage of staff skills and talents.
- It flattens the organization so that staff can be rotated, resulting in fewer promotions and demotions.
- There is greater flow of information.
- There is more direct, free-flowing, integrated communication.

Transition or switching over from a dependent hierarchical structure to an interdependent web structure is not easy. For years every one in the education system, the teachers and students, have been comfortable in dependency roles. Quality leadership challenges us to become interdependent leaders. We share power and become equal colleagues with others to solve system's problems and to fulfill the mission. Such a transition is difficult but not impossible. But it is an exciting journey when administrators, staff, parents, students, and external customers come together in a systemic way to fulfill the institution's mission. Each member becomes a highly competent, best-in-the-field person working collaboratively with all the others- a dream team (Downey, 1992).

Using adhocracy approach: Adhocracy is a way of doing something different than you are doing now. There are several critical attributes of an effective adhocracy (Waterman, 1990). An effective adhocracy

- Requires broad participation.
- Cuts across conventional lines and boundaries.
- Directly confronts ineffective communication.
- Encourages a team effort.
- Requires trust and integrity.
- Minimizes mindless bureaucracy.
- Works only when the leaders expect it to work.

Focus on process: Focusing on the process rather than on the product or output has been unequivocally advocated in the quality movement. Improving the process is the personal responsibility of every employee of the school system. Each of us can add value to the learning of children through our processes.

Deming expressed strongly that the goal must focus on quality issues, not on the number produced. In school learning, the achievement scores have been the indicators of quality education. Every thing in the school has become test-driven. If these tests are not measuring the important learning for students, the student is probably being harmed. Therefore, ensuring quality in the learning process is more important than the achievement scores which can be obtained even without excellence in learning.

The process unlike product demands continuous efforts. Ensuring quality means monitoring process at appropriate points to improve its quality. Sashkin and Kaiser

(1991) have proposed five quality check points where the processes can be improved:

User point: We need to know as to how well our service useful to our customers in meeting their need in real life. For our students, this would mean following them into society to see how well their education is coming to their help in solving their real life problems. Only when we know customer needs, wants, and expectations the desired transformation processes be designed.

Distribution point: This check point is the final inspection prior to customer use.

Process of actual production or service delivery : The use of statistical process control here to assess quality in the process becomes very important. Using best practices in our educational institutions with a focus on curriculum and instructional delivery would be valuable.

Incoming quality assurance : As we receive our products from suppliers and vendors, we should check the quality of the product. In education, textbooks, and other teaching-learning materials and facilities can be checked during their production for quality. So far as non-material inputs are concerned those can be checked with appropriate measures, such as the competence of new staff can be checked through diagnostic tools and specifying areas of growth.

Supply point : The main intention is to work with suppliers to improve their products and services before they reach us. This is comparatively easier in case of suppliers of instructional materials and textbooks. But the main suppliers to the education system are parents who are providers of children with whom we work. Working with parents will help them to prepare their children before they come to our school, and while they are in our schools.

Those who manage each of the five quality checkpoints effectively, as a part of a complete, continuous, and constant process will successfully attain quality in all functions of the education system.

Understanding variation: Knowledge of variation is one of Deming's (1991) four areas of profound knowledge. Variation occurs in every sphere of our life and is unavoidable. In our schools the variations are observed in the performance of students, teachers, provision of materials and resources and in all other aspects. Enhancing quality is implied by minimizing variation.

Shewhart first recognized the importance of understanding and measuring variability in a process (Sashkin and Kaiser, 1991). Deming (1991) pointed to two types of errors that arises while attempting to improve results by the study of variation. There are two types of causes of variation- causes common to all variations, and causes specific to particular variation. One type of error is committed when we treat the outcome as a result of special cause of variation when it actually is due to the common causes. The second error is caused when we attribute the variation due to common causes when actually it is due to special causes. Common cause problems of variation are recurrent while special causes are not.

Reduction of variation in any aspects enhances quality of that aspect. There are two ways to remove or control the causes of variation. First, we want to identify and eliminate the special causes by bringing them into a state of statistical control. Second, we need to work on improving the processes by reducing common causes – causes that still exist when the process is in statistical process control.

For control of the common cause rework, using contingency plans or asking people

to work harder will not work. Giving people new tools or changing the procedures might help. Whereas the special causes can effectively be controlled by using contingency plans.

Encouraging data orientation: To deal with variations in systems, the quality movement has a process called statistical process control (SPC). A number of 'quality tools' have been in use for SPC and ensuring quality of processes. (Ref. Unit 17).

18.3.3 Building Interpersonal Relationships

The third major leverage point in Downey's quality fit framework is building meaningful interpersonal relationships among all types of stakeholders and employees in our education system. In developing a mission and a vision for our schools, we must involve all stakeholders. Providing support to teachers while they are interacting with students should be our priority. When we are engaged in transforming our schools to quality schools, we need to mobilize the students, teachers, staff, administrators, parents and community members to work in unison for providing better opportunities for learning. Here mobilization means building meaningful interpersonal relationships to bring about the desired changes in our schools.

- **Mobilizes the employees.** Employees in a quality organization function together on their own initiatives to achieve the mission objectives. They are coordinated and interdependent members in contrast to the employees of the traditional educational organizations who are mostly either totally dependent or isolated and independent. In order to transform the organization into a quality educational institution, its employees have to be motivated to become interdependent.

Possibly, the following three actions conducted in right manner can bring about such changes:

First, provide adequate training in interdependency cutting across the divergent functions within an organization. The training inputs must include among other things the basic premises and beliefs of quality, the nature and use of quality tools and processes the understanding of which would help the employees to incorporate those into their actions as they work together to solve real problems in the schools. Second, an environment of mutual respect among employees must be established. This would help in the occurrence of equitable treatment in the area of policy development. A sense of fairness and appreciation should also be reflected by developing regard for all employee contributions to the common purpose of the organization. Finally, cross-functional teams of employees in an organization need to be established. This will facilitate adequate access to one another, other teams, available resources, and a shared information base that will allow them to make decision at the lowest level possible in the organization.

Encouraging interdependent employees : Once the mobilization of employees to become collaborative and interdependent is initiated, the educational organization should encourage simultaneously the interdependent behaviors among them. At this point we must distinguish among the three terms- dependence, independence and inter dependence. Where administrators are autocratic and think that whatever they do and think are always right, then the employees would be unmotivated and in need of constant inspection of their work. They would be looking to the top for any decision and direction. This creates an environment of dependency. In the long run, the employees either become totally dependent or due to extreme frustration they try to break the shackle of dependency and try to be independent. By seeking independence through further dependent behavior one cannot be interdependent.

Covey(1989) suggested development of *seven habits* and employees that manifest in consistent behavior. They are :

- i. ***Be proactive:*** Being proactive means taking responsibility – the ability to choose the response to a situation. Proactive behavior is a product of conscious choice based on values rather than reactive behavior, which is based on feelings. We may choose to be proactive by identifying and clarifying our basic values without being defensive, protective or offensive.
- ii. ***Begin with end in mind:*** The fundamental application of this habit is to begin each day with an image, picture, or paradigm of the end of our life as our frame of reference, By being proactive and using our imagination and conscience, we can vividly visualize our ultimate potential.
- iii. ***Put first things first:*** It is the “Just do it” part of reaching interdependence. It is the practice of self-management that impacts a person’s personal and professional life.
- iv. ***Think win-win:*** Win-win is a frame of mind and heart that constantly seek mutual benefit in all human interactions. The concept of win-win is one in which all parties involved in an issue arrive at a mutually satisfactory resolution. It is opposed to compromise wherein all parties involved in an issue had to give up something. It is possible in a system that supports it - you can’t talk win-win and reward win-lose. In any event, win-win is the creation of a third alternative that seeks better solution to a problem.
- v. ***Seek first to understand, then to be understood:*** Seek first to understand involves a paradigm shift since we usually try to be understood first. Empathetic listening is key to effective communication. It focuses on learning how the other person sees the world, how they feel. The essence of empathetic listening is not that you agree with someone, it’s that you fully and deeply understand the person emotionally as well as intellectually.
- vi. ***Synergize:*** Simply put synergy means, “the whole is greater than the sum of its parts.” Together, we can accomplish more than what we can achieve individually together. Synergizing is becoming truly interdependent.
- vii. ***Sharpen the saw:*** It is renewing of four dimensions of your nature – physical, spiritual, mental and socio-emotional. All the four dimensions of your nature must be used regularly in wise and balanced ways. People in high performing teams make time for such experiences and incorporate them into their weekly activities. They are as follows:
 - ***Creating organizational culture of shared values and beliefs.*** Interdependence, the hallmark of quality organization, is possible within a culture of fairness, openness, trust, and respect for dignity of others. To create and sustain a clear standards or norms for behaviors and conflict managements must be collaboratively developed and incorporated into the organizational culture. Sashkin and Kiser (1991) support the creation of a culture based on shared beliefs. The development of an understanding of an effective team environment is the first step in developing interrelationships among the group members leading to interdependence.
 - ***Understanding employees motivation.*** Leaders must have knowledge of the strategies of motivating people intrinsically as opposed to extrinsically. Employees should be encouraged to become self-motivated in the areas of skill development, skill improvement, and quality improvement of ideas

and processes. Any organizational reward should be gained from this premise and not be generated on performance. The rewards and recognitions should be based on those generating intrinsic motivation and not extrinsic motivation.

Divergence of personalities in a group striving to become a team can have adverse effect on the group. A sensitive leader tries to assist group members in transforming their need for extrinsic praise, rewards, and motivation to meet their self-esteem and worth needs to learning how to have these needs met intrinsically. By honoring individuals with trust, the leader can empower them becoming innovative. As a person become innovative divergent in his or her thinking, he or she will begin to make systems improvement.

- ***Recognizing failures in the system.*** Rather than believing that most problems are a result of employee behavior, the quality movement recognizes that most failures are attributable to system problems. Performance evaluation of the system and not that of teachers and other employees is advocated by quality movement. A school transforming its evaluation system from an individualized inspection model to a system model subscribes to the Deming concept of improving the process not the person.
- ***Provision for a community of learners.*** Establishing a community of learners is achieved by providing ongoing education and training to internal and external customers and learning teams in a continuous efforts to improve the system. Deming(1982) has identified a worker's education and training as critical to the well-being of the employee and the organization.

Whenever teams are actively engaged in constant improvement and taking action for change, they are learning the task at hand from one another and from their own actions. The notion of continuous learning is one that every team and individual in an organization must strive to make a part of his or her core being and practice in his or her behaviors every minute of every day.

- ***Provides for constant communication and feedback.*** More and more ongoing communication among management and employees effects improvement in the organization. Communication becomes essential among all stakeholders to solve intricate problems. The following ideas about communication are important in building quality organizations:
 - i) Communication must be interactive so that stakeholders' ideas and concerns can actively impact the direction the organization is taking.
 - ii) One way communication by letters, memoranda, news letters are becoming highly ineffective.
 - iii) Open communication removes reservations and misunderstanding from the participants.
 - iv) Interpersonal communication behaviors can make or mar the environment of trust and openness which is necessary for a group to transform into a high performance team.

Some basic tenets for effective communication management are:

- ensure that each member of the team has a chance to be heard, develop a shared knowledge base, go slow to go fast, listen with respect.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

5. How do the interpersonal relationship will be build up ?

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6. List any three advantages of the integrated web structure.

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18.4 IMPLEMENTING TQM IN EDUCATION

The decision regarding the implementation of the TQM in our system of education has to be taken by the policy makers. But there has been clear trend towards improving quality of education and making it learning centric is quite pronounced in the National Curriculum Framework, 2005 and other recent efforts . Whether or not we totally adopt TQM in education system of our country, we need to be aware of the ways of implementing it so that it can be useful for infusing quality elements into our system . In this section we discuss briefly the process of implementing TQM from the beginning.

- Before an education system decides to start implementing TQM , it is highly recommended that the policy makers, the decision makers, the members of top management and administration , teacher's representatives, opinion leaders study the basics of the movement in detail. Being a learner first is a critical attribute in deciding about quality.
- Know who the customers are, direct and indirect, as well as internal and external.
- Work on a shared mission and then on shared vision.
- Work on improving customers' services with internal customers. Particular emphasis should be placed on improving the conditions of teachers and other employees, services and staff, the primary service providers and so on.
- Move the employees to refocus from themselves as customers to other customers- especially our students.
- Modeling from senior officers is critical. Model behaviors shown by the top managers/administrators shall have direct effect on others in the organization.

- Decide and finalize using a collaborative approach regarding the essential guiding features on the three main points of quality i.e. Purpose, Structure and Relationships for the respective education systems.
- Plan elaborately for each main point in the light of the Quality Fit Framework which have been discussed briefly in this unit.

While implementing quality ideas in our education system, it is important to remember what we know about change. Scholtes (1988) identifies several aspects of change as they relate to our quality endeavors:

Keep in mind the laws of organizational change.

Things are the way they are because they got that way.

Unless things change, they are likely to remain same.

Change would be easy if it was not for all the people.

- People do not resist change, they resist being changed.
- Break down barriers.
- Identify informed networks.
- Build a critical mass.
- Treat change like a courtship.
- Anchor the change.

At the end let us see what Downey et al.(1994) had to conclude. The question for us now is, do we begin? It means a long-term commitment to bringing about meaningful reform in our educational organisations. But not doing it well could mean another decade where quality is lost to increased productivity. Just another fad – quality. Let us hope not. There are too many important quality premises to sacrifice another opportunity, go for it. (p122)

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answer with that given at the end of this unit.

7. What are the process of implementing TQM in your organisation.

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18.5 LET US SUM UP

- The concept of quality in terms of customer's satisfaction has been reflected in all definitions by all those associated with the Total Quality Management. The dimensions of quality and quality education as per the basic premises of quality education have been drawn.
- The famous 14 points of Deming about quality and its educational implication.

along with the premises about quality given by two eminent quality gurus- Juran and Crosby have also been presented and similarity of views of the three quality gurus have been discussed.

- Basing on the premises of quality education, particularly on the Deming's 14 Points, dimensions of Downey's (1997) Quality Fit Framework with its three leverage points- Purpose, Structure, and Relationships have been presented.
- Under strategy for TQE, the conceptual discussions have been made under three sub sections – Clarifying purpose and mission, Structure through systems thinking, and Building meaningful relationships.
- Finally a short presentation on the implementation of TQM in education have been attempted.

18.6 UNIT END ACTIVITIES

1. Select any strategy and use it in your organisation for quality education.
2. Develop a strategy for implementing TQM in teaching-learning situations in your school or college.

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18.8 ANSWERS TO CHECK YOUR PROGRESS

1. Ref. section 18.3
2. Quality may have several dimension. Garvin listed as many as nine dimensions of quality. They are –Performance, Features, Conformance, Reliability, Durability, Service,
3. Juran 1974, recommends a ten steps approach in quality improvement. These are as follows:
 - i. Build awareness of the need and opportunity for improvement.
 - ii. Set explicit goals for improvement.
 - iii. Organize to reach the goals (establish a quality council, identify problems,

select projects, appoint teams, designate facilitator).

- iv. Provide appropriate training.
 - v. Carry out projects to solve problems.
 - vi. Report progress.
 - vii. Give recognition and reinforce success..
 - ix. Communicate results.
 - x. Keep records of changes.
 - xi. Build an annual improvement cycle into all organizational processes.
4.
 - a) the definition of quality is conformance to requirement
 - b) the system of quality is prevention
 - c) the performance standard
 - d) the measurement of quality is the price of non-conformance.
 5. Ref. subsection 18.5.3
 6. There are several advantages of the integrated web structure. Important among them and as follows:
 - Flexibility without lowering morale- people are not primarily concerned with rank and position.
 - One can serve in various teams without worrying about whether the assignment is appropriate to status.
 - The inclusive, webbed structure takes full advantage of staff skills and talents.
 - It flattens the organization so that staff can be rotated, resulting in fewer promotions and demotions.
 - There is greater flow of information.
 - There is more direct, free-flowing, integrated communication
 7. Ref. sub-section 18.6

UNIT 19 ROLE OF DIFFERENT AGENCIES

Structure

19.1 Introduction

19.2 Objectives

19.3 Agencies Associated with School Education

19.3.1 Advisory Bodies at School Education

19.3.2 Examining Boards at School level

19.3.3 Others Agencies

19.4 Bodies at Higher Education Level

19.4.1 University Grants Commission (UGC)

19.4.2 State Councils of Higher Education

19.4.3 National Assessment and Accreditation Council (NAAC)

19.4.4 All India Council of Technical Education (AICTE)

19.4.5 Distance Education Council (DEC)

19.4.6 Indian Council for Agricultural Research (ICAR)

19.4.7 Bar Council of India (BCI)

19.4.8 National Council for Teacher Education (NCTE)

19.4.9 Rehabilitation Council of India (RCI)

19.4.10 Indian Council for Medical Research (ICMR)

19.4.11 Council of Architecture (CoA)

19.4.12 Institute of Company Secretaries of India (ICSI)

19.4.13 Institute of Cost and Works Accountant of India (ICWAI)

19.4.14 National Commission for Minority Educational Institutions (NCMEI)

19.4.15 Association of Indian Universities (AIU)

19.5 Let Us Sum Up

19.6 Unit-end Activities

19.7 References

19.8 Answers to Check Your Progress

19.1 INTRODUCTION

You might have come across in the colleges/universities/professional education institutions/ school's admission notification regarding their grade by NAAC or recognition by AICTE, NCTE, CBSE, ICSE and so on. These agencies or bodies are responsible for accreditation/recognition of the institutions. India's commitment to progress immediately after attaining independence system has led to rapid expansion at both the school and higher education levels. The quantitative growth of educational institutions, the student enrollment and the number of teachers in a short span of time led to the dilution of quality of education at all levels that is input, process and output. Similarly increase in the participation of private and international partners in education and use of ICTs in education have led educational institutions in the country to provide services to a good quality and also comparable to its international counterparts. In this context, the education system confronted with many questions such as:

- What are the determinants of quality in education?
- How to measure or assess an institution objectively?

- Who will assess the educational institution?
- What are the different bodies associated with it at the national level?
- What are the major challenges faced by them?

These are some questions and you may be thinking of many more in this aspect.

In this present unit we will be discussing about them and their role in quality education either at the school education or higher education.

19.2 OBJECTIVES

After going through this unit, you will be able to:

- list various agencies involved in total quality management;
- discuss the role of various agencies involved in improving the quality of school education; and
- discuss the role of various agencies involved in improving the quality of higher education.

19.3 AGENCIES ASSOCIATED WITH SCHOOL EDUCATION

You have studied about various national bodies in the Course MES 042 : **Dimensions of Educational Management**. Many of those bodies/agencies are associated with quality control and/or quality assurance at the school and higher education levels. In this section you shall study various bodies engaged in quality assurance of school level education. They are advisory bodies, examination bodies, and other miscellaneous bodies.

19.3.1 Advisory Bodies at School Education

National Council of Educational Research and Training (NCERT) is a national level advisory body for school education in the country. The NCERT undertakes, supports and funds educational research and offers training in research methodology. Developmental activities in school education include development and renewal of curricula and instructional materials for various levels of school education and making them relevant to changing needs of children and society. The innovative activities include development of curricula and instructional materials in the area of pre-school education, formal and non-formal education, vocational education and teacher education. These also include the domains of educational technology, population education, inclusive education and other important areas.

The NCERT and its regional institutes of education are involved in pre-service and in-service training of teachers at pre-primary, elementary, secondary and higher secondary levels. Vocational education, educational technology, guidance and counseling, and special education are the areas in which NCERT is associated. NCERT through its various departments of the National Institute of Education (NIE), Regional Institutes of Education (RIEs), Central Institute of Educational Technology (CIET) and Pandit Sundarlal Sharma Central Institute of Vocational Education (PSSCIVE) are engaged in various extension activities in all the States and Union Territories of the country.

NCERT publishes textbooks for different school subjects for classes I to XII and also workbooks, teachers' guides, supplementary readers, research reports, etc.

In addition, it publishes instructional materials for teacher educators, teacher trainees and in-service teachers. These materials are adapted/ adopted by various state governments for school education. The textbooks are published in English, Hindi and Urdu. Besides, it publishes educational journals in the area of school education and teacher education in English and Hindi languages.

NCERT interacts with international organizations such as UNESCO, UNICEF, UNDP, and World Bank in specific educational problems and arranges training programmes for personnel from other countries. NCERT is one of the centers of APEID. It also acts as the Secretariat of the National Development Group (NDG) for educational innovations. In this way the NCERT acts as a major agency for implementing the bilateral cultural exchange programmes entered into by the Government of India with the governments of other countries in the fields of school education and teacher education.

State Council of Educational Research And Training(SCERTs), States Institutes of Education (SIEs) and State Institutes of Educational Management and Training (SIEMATs): States have various bodies/agencies for advisory, regulatory and accreditation purposes concerning school education. Institutions like SIE, SCERT, SIEMAT, etc are responsible for quality education in institutions under their jurisdiction.

National Institute of Open Schooling (NIOS): It has provided an alternative school education opportunities to all those students who could not avail formal school education due to one of the other reason.

As an apex body, NIOS functions as a resource organization for all the States and Union Territories in the country. NIOS has also the responsibility to expand the open distance learning system (ODL) at the school level throughout the country. It has been playing the lead role in developing a network of open schooling channel in the country and as a result ten State Open Schools have come up. The National Consortium of Open Schooling (NCOS) set up by NIOS has an important role in the promotion and development of open schooling in the country.

The NIOS provides opportunities of continuing education to the learners through its basic education, secondary education, senior secondary education, vocational education and life enrichment courses.

The NIOS provides opportunities to learners to choose vocational subjects in combination with academic subjects at both the secondary and senior secondary levels. There is unique blending of academic courses with the vocational courses so that learners can make a choice about whether to pursue both or one of the streams.

State Open Schools (SOSs): A number of states have established open schools to cater to educational opportunities for all those who cannot afford formal school education due to one or the other reason. The SOSs have been assigned regulatory, accreditation, examination and quality assurance role, in respective states.

19.3.2 Examining Boards at School Level

Being in the concurrent list, education in the country is controlled by both the states as well as central governments. Therefore provision and maintenance of the quality in educational institutions is the responsibility of the respective states and central governments. The constitutional position of education under centre as well as respective state governments has given the administering authority for education in the country to Government of India at different levels, starting from primary school

education to university level education and research. Therefore, education is managed by the various apex bodies created by the government. There are various Boards of education which affiliate schools and conduct examinations. The role and functions of some of the examining boards are discussed as follows:

i) The Central Board of Secondary Education (CBSE): It is an apex body of education under the supervision of Ministry of Human Resource Development (MHRD), Government of India. The CBSE acts as a controlling agencies for entrants for various professional courses. The CBSE was established to achieve certain interlinked objectives in the direction of quality initiatives in education in general and examination cum certification in particular. The CBSE is an examination body for secondary and senior secondary school certification. It conducts entrance examinations, for various professional courses like medical, dental, engineering. It also looks after the functioning of schools accredited to Central Education System. It also affiliates schools, thus has control over the central education system. All the schools of Delhi, Union Territories, states of Arunachal Pradesh and Sikkim falls under the jurisdiction of CBSE. But the jurisdiction of CBSE also goes beyond the national boundaries. The objectives of the CBSE are as follows:

- Prescribe norms and guidelines for examinations and conduct public examinations at the end of secondary and senior/higher secondary stages..
- Grant qualifying certificates to successful students of the affiliated schools.
- Fulfill the educational requirements of children of people employed in transferable jobs.
- prescribe and update the course of instructions of examinations.
- Affiliate institutions for the purpose of examination and raise the academic standards of the country.

The prime focus of the Board is on:

- Innovations in teaching-learning methodologies for student-friendly and students-centered paradigms.
- Reforms in syllabus and evaluation methodologies.
- Skill based learning by including job-oriented and job-linked inputs in existing and newer courses.
- Regular in-service training programmes for teachers and educational administrators in current and crucial issues related to pedagogy, affiliation, examination and related aspects.

ii) Council of Indian School Certificate Examination (CISCE): It has been established as an apex organization to control the system of ISC/ICSE education in India. It is a Board for Anglo-Indian Studies in India. It was established in 1958 by the University of Cambridge Local Examinations Syndicate to ensure that its examinations become adapted to the educational needs of the country. The main purpose of setting up this council was to replace the overseas Cambridge School Certificate Examination conducted by British authorities.

It conducts two examinations 'Indian Certificate of Secondary Education (ICSE)' and 'Indian School Certificate'. Indian Certificate of Secondary Education is a K-10 examination for those studying class X and Indian School Certificate is a K-12 public examination conducted for those studying in class XII. Indian School Certificate

(Class XII) is treated as equivalent to Senior Examination of the University of Scotland. This implies that students will no longer be required to obtain 'A' level qualifications or complete bridge courses, while seeking entry to Universities in the UK and other overseas Universities in the Commonwealth. Indian School Certificate qualification is the only qualification from India that has been granted this special recognition. Majority of schools affiliated to the Board are in India and a number of schools in other countries with non-resident Indian populations.

iii) The State Government Boards:

Apart from CBSE and CISCE each state in India has its own State Boards of Education, which looks after the educational issues at school level in the State. A school can also get affiliated to the State Government Boards.

iv) **National Institute of Open Schooling (NIOS):** the other functions of the NIOS under advisory, regulatory and affiliating have been covered earlier. It is also an examining as well as accrediting body and also develops its own curriculum. It also accredits institutions fulfilling the required norms and conditions as its study centres for offering its various programmes. Its study centres for secondary and senior secondary courses are set up in the affiliated schools either by CBSE or state boards of School Education.

19.3.3 Other Agencies

- i) **Central Tibetan Schools Administration (CTSA) :** The Central Tibetan Schools Administration is an autonomous organization under the Ministry of Human Resource Development, Government of India established in 1961. The objective of CTSA was to establish, manage and assist schools for the Tibetan children living in India while preserving and promoting their culture and heritage. The schools are affiliated to CBSE and follow NCERT curriculum. The CTSA is responsible to assure quality of the schools under its control.
- ii) **Navodaya Vidyalaya Samiti (NVS) :** The Navodaya Vidyalaya Samiti is also an autonomous organization under the Ministry of Human Resource Development, Govt of India that runs Navodaya Vidyalayas through the country. These schools were created to identify and foster talented children from the rural area of India. These schools are located all over the country, including Lakshadweep and Andaman and Nicobar islands except Tamil Nadu.

The objectives of the NVS are as follows:

- serve the objectives of excellence coupled with equity and social justice.
- promote national integration by providing opportunities to talented children, largely rural, from different parts of the country, to live and learn together and develop their full potential.
- provide good quality modern education, including a strong component of culture, inculcation of values, awareness of the environment, adventure activities and physical education.
- ensure that all students of Navodaya Vidyalayas attain a reasonable level of competence in three languages as envisaged in the Three Language Formula; and
- serve, in each district, as focal point for improvement in quality of school education through sharing of experiences and facilities.

Navodaya Vidyalayas are residential in nature where the students and teachers live

on campus. These schools draw their student strength from talented children, selected on the basis of a merit test, called the Jawahar Navodaya Vidyalaya Selection Test. The test is held annually on all India basis and at block and district levels. The NVS scheme ensures that rural children get high quality education, at par with their counterparts in cities.

Admissions in Jawahar Navodaya Vidyalayas are primarily for children from the rural areas, with provision of 75 percent seats for rural children and 30 percent seats are earmarked for the children from the urban area. Seats are reserved for children from the SC and ST communities in proportion to their population in the district but not less than the national average. One-third of the seats are for girl students. Three percent of the seats are reserved for disabled children.

Navodaya Vidyalayas, affiliated to the CBSE offer free education to talented children from Classes-VI to XII. Entry to a Navodaya Vidyalaya is in Class-VI only along with lateral entry into Class IX and XI. Each Navodaya Vidyalaya is a co-educational residential institution providing free boarding and lodging, uniforms, text books, stationery, to and from rail bus fare to the children. However, a nominal fee @ Rs. 200/- per month is charged from the students of Class IX to XII for *Vidyalaya Vikas Nidhi* (school development fund). The fee exemption facility is provided to the children of the families below poverty line.

iii) Kendriya Vidyalaya Sangathan (KVS) : The Kendriya Vidyalayas (Central Schools) established in 1965, have come to be known as centres of excellence in the field of secondary and senior secondary education promoting national integration and a sense of "Indian-ness" among the children while ensuring their total personality development and academic excellence. The Kendriya Vidyalayas have a four - folds mission:

- To cater to the educational needs of children of transferable Central Government including Defence and Para-military personnel by providing a common programme of education.
- To pursue excellence and set the pace in the field of school education.
- To initiate and promote experimentation and innovations in education in collaboration with other bodies like the Central Board of Secondary Education (CBSE) and the National Council of Educational Research and Training (NCERT) etc.
- To develop the spirit of national integration and create a sense of "Indian ness" among children.

There is a Quality Council of India and National Accreditation Board of Education and Testing (NABET) under the Government of India that orient schools on various aspects of quality education in the country, Conduction of training programmes for teachers, evaluators and administrators at the school education levels in the prime focus of these bodies. They have only advisory or facilitating functions in the direction of quality school education.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

1. What is the main purpose behind setting up of ICSE in the country?

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2. Mention the four folds objectives of Kendriya Vidyalayas:

19.4 BODIES AT HIGHER EDUCATION LEVEL

Quality is the benchmark for development of infrastructure, curriculum, human resources and research alongwith the establishment of centres of excellence, interdisciplinary and inter-institutional centres. In the earlier section, you have studied that institutions providing school education at the secondary senior secondary level need to be affiliated with an examining board. The same is applicable in case of Institutions offering higher education.

In the present context, it is mandatory for all the Indian institutions to be recognized by the appropriate national and /or state level statutory bodies established by the Government of India for compliance to quality standards. Accreditation for universities in India is required by law unless it was created through an act of Parliament. Without accreditation, the government notes **“these fake institutions have no legal entity to call themselves as University/Vishwavidyalaya and to award ‘degree’ which are not treated as valid for academic/employment purposes”**.

There are various bodies responsible for quality assurance. At present, India has two government-run accreditation bodies : the National Board of Accreditation (NBA), constituted by the All India Council for Technical Education (AICTE) and National Assessment and Accreditation Council (NAAC), an autonomous body established by the University Grants Commission (UGC).

The various professional councils that are responsible for recognition of courses, promotion of professional institutions and providing grants to undergraduate programmes and various awards. Some of the statutory professional councils are as follows:

- All India Council for Technical Education (AICTE)
- Distance Education Council (DEC)
- Indian Council of Agricultural Research (ICAR)
- Bar Council of India (BCI)
- National Assessment and Accreditation Council (NAAC)
- National Council for Teacher Education (NCTE)
- Rehabilitation Council of India (RCI)
- Medical Council of India (MCI)
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Dental Council of India (DCI)

- Central Council of Homeopathy (CCH)
- Central Council of Indian Medicine (CCIM)
- Veterinary Council of India (VCI)

In addition to these bodies there are agencies not having statutory functions but are associated with quality aspects. One of them at the higher education level is Association of Indian Universities (AIU). Brief description of these bodies is given as follows.

19.4.1 University Grants Commission (UGC): UGC is a co-ordinating as well as a grant giving body for academic purposes to the universities and colleges. As you know, as per our Constitution education is the subject of both the centre as well as the states. The “coordination and determination of standards in institutions of higher education, research and scientific and technical institutions” is exclusively the responsibility of the centre. To take care of this provision the UGC was established as a statutory body required to regulate academic standards in addition to allocation of funds. The National Accreditation and Assessment Council (NAAC) of India is an autonomous body under the UGC and helps in quality maintenance through accreditation procedures for universities.

19.4.2 State Councils of Higher Education: Following the National Policy on Education, some state governments have established State Councils of Higher Education (SCHE). These councils prepare coordinated programmes of development of higher education in the respective state. The Andhra Pradesh State Council of Higher Education (APSCHE) is the first body established by the Government of A.P. A detailed description of this body has been covered in the Unit 3: Role of National Bodies of the Course MES 042: Dimensions of Education.

19.4.3 National Assessment and Accreditation Council (NAAC): The was established by UGC to assess and accredit institutions of higher learning in the country. It was established in 1992 as a result of recommendations of National Policy on Education - 1986' which emphasized on the deteriorating quality of higher education in the country.

The NAAC certifies institutions of higher learning (colleges, universities, institutes, etc) in the country; however, it does not include the institutes providing technical education. As discussed earlier, the technical education institutions are accredited by National Board of Accreditation (NBA), an organization established by All India Council for Technical Education (AICTE), New Delhi. NAAC stresses on quality assurance, as integral part of the functioning of higher education institutions. The main functions of the organization are as follows:

- arrange for periodic assessment and accreditation of institutions of higher education or units thereof, or specific academic programmes or projects;
- stimulate the academic environment for promotion of quality of teaching-learning and research in higher education institutions;
- encourage self-evaluation, accountability, autonomy and innovations in higher education;
- undertake quality-related research studies, consultancy and training programme;
- collaborate with other stakeholders of higher education for quality evaluation, promotion and sustenance.

19.4.4 All India Council of Technical Education (AICTE): The AICTE was established for ensuring proper planning and coordinated development of technical education (this includes engineering and management education amongst others) and for the regulation of proper norms and maintenance of standards. The purview of AICTE covers programmes of technical education including training and research in Engineering, Technology, Architecture, Town Planning, Management, Applied Arts and Crafts, etc. at different levels.

AICTE continuously strives to maintain the quality of technical education in the country. The National Board of Accreditation (NBA) of AICTE aims to maintain level of some of the programmes offered in technical institutions on par with programme offered in institutions in other countries by inducing a quality auditing system and establishing a datum for measuring the quality and excellence in engineering and management education. The NBA periodically reviews and evaluates technical institutes or programmes and recommends their recognition or de-recognition.

19.4.5 Distance Education Council (DEC): DEC is responsible for coordination and maintenance of standards in open and distance education system in the country. Established as a statutory body, it strives for coordinated development of learner-centric open and distance learning (ODL) system and ensures high quality education, meet challenges of access and equity to reach the un-reached. Mission of Distance Education Council (DEC) is as follows:

- Encourage state governments/conventional universities to establish open universities/ distance education institutes and create a network of such institutions.
- Provide financial support and grants and academic guidelines to institutions of open and distance education.
- Evolve norms, procedures and guidelines in respect of admission, evaluation, and certification.
- Assess and accredit institutions of open and distance learning to ensure quality.
- Promote convergence of conventional ODL and other systems to facilitate mobility of learners through credit transfer/sharing.

The functions of DEC are as follows :

- develop a network of open universities/distance education institutions in the country in consultation with the State Governments, Universities, and other concerned agencies;
- identify priority areas in which distance education programmes should be organized and to provide such support as may be considered necessary for organizing such programmes;
- identify the specific client groups and the types of programmes to be organized for them, and to promote and encourage the organization of such programmes through the network of open universities/distance education institutions;
- promote an innovative system of University level education, flexible and open, in regard to methods and pace of learning, combination of courses, eligibility for enrolment, age of entry, conduct of examination and organize various courses and programmes;
- promote the organization of programmes of human resource development for the open university/distance education system;

- initiate and organize measures for joint development of courses and programmes and research in distance education technology and practices;
- recommend to the Board of Management the pattern and nature of financial assistance that may be sanctioned to open universities/distance education institutions and the conditions that may have to be fulfilled by them to receive such assistance;
- take such steps as are necessary to ensure the coordinated development of the open university/distance education system in the country;
- establish and develop arrangements for coordinating and sharing the instructional materials prepared by different open universities/distance education institutions, and the student support systems with a view to avoid duplication of efforts;
- evolve procedures for sharing of courses and programmes and for the payment of royalty or other charges to the members of the network whose courses and programmes are used by other members;
- prescribe broad norms for charging fees from students who join various programmes offered by the network of open universities/distance education institutions;
- collect, compile and disseminate information relating to the courses and programmes offered by various open universities/distance education institutions;
- advise State Governments, universities and other concerned agencies on their proposals to set up open universities, or to introduce programmes of distance education;
- appoint Review Committees from time to time to study and assess the performance of the open universities/distance education institutions participating in the network on any aspect relevant to the functioning of the network;
- prescribe a broad framework for courses and programmes including their pattern and structure;
- evolve norms, procedures and practices in respect of admission, evaluation, completion of course requirements, transfer of credits, etc. of students admitted to the programmes of the open university/distance education network and for the award of certificates, diplomas and degrees to them;
- evolve guidelines for the organization of student support services for the open university/distance education programmes;
- take such measures as are necessary, consistent with the objects of the University to provide an innovative, flexible and open system of University education, for the promotion, including introduction and continuation, of courses and programmes which conform to the standards prescribed by the DEC, to maintain such standards in the institutions offering distance education programmes and to prevent, through such measures as are considered appropriate, institutions from offering courses and programmes which do not conform to the standards laid down by the Council;
- Appoint Committees for advising and assisting the DEC in the performance of any of its functions or exercise of any of its powers.

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

3. Mention three categories where the open and distance universities can meet the needs of the learners.

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4. Enumerate any three functions of DEC.

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19.4.6 Indian Council for Agricultural Research (ICAR): This is an organization under the Department of Agricultural Research and Education of the Ministry of Agriculture with the role of developing agricultural technologies, input material, and critical scientific base for attaining self-sufficiency in food. It is a national autonomous body. It has been instrumental in the setting up and growth of agricultural universities in the country.

19.4.7 Bar Council of India (BCI): The BCI is an autonomous body which governs the legal/law institutions in India. It was constituted under the Advocates Act 1961 has to lay down the standards of professional conduct and etiquette and also standards of legal education. Some of the functions are as follows:

- promote legal education and to lay down standards of such education in consultation with the Universities in India imparting such education and the State Bar Councils;
- recognize Universities whose degree in law shall be a qualification for enrolment as an advocate and for that purpose to visit and inspect Universities or cause the State Bar Councils to visit and inspect Universities in accordance with such directions as it may be given in this behalf;
- to recognize on a reciprocal basis foreign qualifications in law obtained outside India for the purpose of admission as an advocate under this Act.

19.4.8 National Council for Teacher Education (NCTE): NCTE was set up by Government of India in 1973 as an advisory body to the government at the Center and the State, on matters related to teacher education. However, on the recommendation of National Policy on Education (NPE), in 1986 a statutory body to look after the teacher education in the country was set up as a first step to produce effective teaching professionals in the country. On 17 August 1995, National Council for Teacher Education (NCTE) was conferred the status of a statutory body in pursuance to the National Council for Teacher Education Act, 1993.

The main objective of the NCTE is to achieve planned and coordinated development of the teacher education system throughout the country, the regulation and proper maintenance of Norms and Standards in the teacher education system and for matters connected therewith. One of the functions assigned to NCTE is grant of recognition / permission to teacher training institutions for running various programmes. Regulations laying down the procedure for grant of recognition to various teacher training programmes have also been promulgated. The mandate of the NCTE covers the whole gamut of teacher education programmes including research and training of persons for equipping them to teach at pre-primary, primary, secondary and senior secondary stages in schools, and non-formal education, part-time education, adult education and distance (correspondence) education courses.

19.4.9 Rehabilitation Council of India (RCI): RCI was set up as a registered society in 1986 under the aegis of the Ministry of Social Justice and Empowerment (then Ministry of Social Welfare) to standardize and maintain uniform standards of training of professionals. The Council has the twin responsibility of standardizing and regulating the training of professional and personnel in the field of rehabilitation and special education. The objectives of the RCI are as follows:

- regulate the training policies and programmes in the field of rehabilitation of persons with disabilities.
- bring about standardization of training courses for professionals dealing with persons with disabilities.
- prescribe minimum standards of education and training of various categories of professionals/ personnel dealing with people with disabilities.
- regulate these standards in all training institutions uniformly throughout the country.
- Recognize institutions/ organizations/ universities running master's degree/ bachelor's degree/ P.G.Diploma/ Diploma/ Certificate courses in the field of rehabilitation of persons with disabilities.
- recognize degree/diploma/certificate awarded by foreign universities/ institutions on reciprocal basis.
- maintain Central Rehabilitation Register for registration of professionals/ person.
- recognize Vocational Rehabilitation Centres as manpower development centres.
- register vocational instructors and other personnel working in the Vocational Rehabilitation Centres.
- recognize the national institutes and apex institutions on disability as manpower development centres.

19.4.10 Indian Council for Medical Research (ICMR): The body established for medical education, is the body that formulates, coordinates and promotes biomedical research in India. It funds research institutes in the field entirely and through grants-in-aid given to non ICMR institutes.

19.4.11 Council of Architecture (CoA): The Council of Architecture (CoA) has been constituted by the Government of India under the provisions of the Architects Act, 1972, enacted by the Parliament of India. The Act provides for registration of Architects, standards of education, recognized qualifications and standards of practice to be complied with by the practicing architects. The Council is charged with the responsibility to regulate the education and practice of profession throughout India besides maintaining the register of architects.

19.4.12 Institute of Company Secretaries of India (ICSI): The Company Law Board 1960 started in a course in company secretary ship leading to the award of Government Diploma in company secretary ship. The Institute of Company Secretaries of India under Section 25 of the Companies Act, 1956 for taking over from the Government the conduct of company Secretaryship examination. The Institute of Company Secretaries of India has established a statutory body in 1981 under the Company Secretaries Act, 1980 to develop and regulate the profession of Company Secretaries in India. Its vision is to be global leader in development of professionals specializing in corporate governance”.

19.4.13 Institute of Cost and Works Accountant of India (ICWAI): The Institute of Cost and Works Accountants of India (ICWAI) is the only recognized statutory professional organization and licensing body in India specializing exclusively in Cost and Management Accountancy .It imparts education and conducts qualifying examination for Cost and Management Accountants. It also regulates and develops the profession thereof has chapters situated elsewhere in India and abroad. It also exercises supervision for the entrants to the profession and to ensure strict adherence to the best ethical standards by the profession,

19.4.14 National Commission for Minority Educational Institutions (NCMEI): National Commission for Minority Educational Institutions (NCMEI) has been established through an act of Parliament i.e. National Council for Minority Educational Institutions Act (2004).It provides *inter alia*, for the rights of minority educational institutions to seek affiliation to any university of their choice, provided the relevant law under which such universities are created, allow such affiliation. Disputes relating to the minority status of educational institutions are also to be resolved by the commission. Thus, for the first time, Article 30(1) of the Constitution, which gives minorities the right to establish and administer educational institution of their choice, is being effectively implemented through the NCMEI Act.

19.4.15 Association of Indian Universities (AIU): Association of Indian Universities (AIU) is an organization to evaluate the courses, syllabi, standard and credits of foreign Universities and to equate them in relation to various courses offered by Indian Universities. This is a body comprising the Vice chancellors of all member universities, with a view to coordinate the work of all universities, establish equivalence between degrees awarded by Indian and foreign universities, conduct research on various aspects of university development, organize training and development programmes for higher education administrators, develop databases on higher education and publications, represent the universities in national and international forums.

The AIU is mainly concerned with the recognition of Degrees/Diplomas awarded by the accredited Universities in India and abroad for the purpose of admission to higher courses at Indian Universities. The AIU is also an implementing agency for the agreements signed under the Cultural Exchange Programme executed between India and other countries in the field of education, insofar as it relates to the recognition of foreign qualifications (except for medicine and allied courses).

Its opinion as to legitimacy or recognition of any foreign qualification is not binding upon anyone, as it is neither a statutory body, nor a part of the government. It is in fact a society registered under the societies act.

In a nutshell ,the Higher Education sector ensures quality of the educational process with the help of accreditation agencies established for the purpose.As you may be aware that the main agency which accredits University and Colleges in general education is the National Assessment and Accreditation Council (NAAC) established

by the UGC in 1994, where is similar function for Technical Education is done by the National Board of Accreditation (NBA) set up by AICTE in 1994, and for Agricultural education by Accreditation Board (AB) set up by ICAR in 1996. Some of the other professional regulatory bodies have set up their own accreditation agencies, for instance both the Distance Education Council(DEC) and the National Council for Teacher Education(NCTE). In addition to National accreditation, local quality inspection of affiliated colleges are carried out by the affiliating University to ensure provision of adequate academic infrastructure and satisfactory teaching-learning processes. Analysis of examination performance of students is also used by Universities to assess the quality of educational offerings of individual colleges.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

5. What are the main objectives and functions of NCTE.

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6. Write any three objectives of RCI

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19.5 LET US SUM UP

Role of regulating bodies or agencies have been crucial in the quality education at any level. This unit aimed at discussing on various points related to this aspect. It covered the points regarding different agencies associated with quality education at school, vocational, higher and professional education in the country. It also discussed their specific functions as regulation, maintenance, funding/grants and so on. Similarly the common issues pertaining to quality education management in the country has been discussed.

19.6 UNIT-END ACTIVITIES

1. Select any one regulatory body responsible for quality elementary education in your state. Interview few school heads and elementary teachers regarding guidelines provides to the school regarding quality education. Write a report based on the information you received by interviews as well as your analysis.
2. Visit a website of a regulatory body for professional education and write a report regarding its functions in providing quality education in the country.

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19.8 ANSWERS TO CHECK YOUR PROGRESS

1. The main purpose of setting up overseas Cambridge School Certificate Examination conducted by British authorities.
2. The four folds of Kvs are :
 - To cater to the educational needs of children of transferable Central Government including Defence and Para-military personnel by providing a common programme of education.
 - To pursue excellence and set the pace in the field of school education.
 - To initiate and promote experimentation and innovations in education in collaboration with other bodies like the Central Board of Secondary Education (CBSE) and the National Council of Educational Research and Training (NCERT) etc.
 - To develop the spirit of national integration and create a sense of "Indian ness" among children.
3.
 - a. Those who reside in remote areas and do not have access to the higher education
 - b. Those who can not join regular courses due to financial and other constraints.
 - c. Professional aspiring for additional qualification.

4. The functions of DEC are to : (any three)

- develop a network of open universities/distance education institutions in the country in consultation with the State Governments, Universities, and other concerned agencies;
- identify priority areas in which distance education programmes should be organized and to provide such support as may be considered necessary for organizing such programmes;
- identify the specific client groups and the types of programmes to be organized for them, and to promote and encourage the organization of such programmes through the network of open universities/distance, education institutions.

5. The main objectives of the NCTE is to achieve planned and coordinated development of the teacher education system throughout the country, the regulation and proper maintenance of norms and standard in the teacher education system. One of the fuction assigned to NCTE is grant of recognition/ permisson to teacher training institutions for running various programmes.

6. a) Regulate the training policies and programme in the field of rehabilitation of persons with disabilities.
- b) Bring about standardisation of training courses for professionals dealing with person with disabilities.
- c) Regulate these standards in all training institutions uniformly througout the country.

UNIT 20 QUALITY CONCERNS AND ISSUES FOR RESEARCH

Structure

- 20.1 Introduction
- 20.2 Objectives
- 20.3 Status of Research in Educational Management
- 20.4 Issues and Concerns for Research in Educational Management
 - 20.4.1 Research in Educational Management
 - 20.4.2 Priority areas of research in educational management
- 20.5 Educational Institutions and Research in Educational Management
- 20.6 Quality Dimensions in Research of Educational Management
- 20.7 Let Us Sum Up
- 20.8 Unit End Activities
- 20.9 References
- 20.10 Answers to Check Your Progress

20.1 INTRODUCTION

In Unit 19, you have studied different agencies/bodies associated with issues of management in the field of higher education. One of the objectives of research in educational management is to generate knowledge on the basis of experiences and discovering truth from further improvement. Even NPE – 1986 focused on strengthening research and development in its recommendations. In this unit, you would study various aspects of research in educational management and the issues related to improvement of the quality of research in educational management. Focus has also been laid on priority areas of research in educational management and the role and responsibilities of institutions associated with the research in the field of educational management.

20.2 OBJECTIVES

After going through this unit, you should be able to:

- Describe the status of research in educational management;
- appreciate the issues and concerns for research in educational management;
- discuss the nature and scope of research in educational management;
- identify the priority areas of research in educational management; and
- explore the quality indicators of research in educational management

20.3 STATUS OF RESEARCH IN EDUCATIONAL MANAGEMENT

In our country educational management is usually not an area of priority in the past in Universities and other higher education institutions. The total focus of management

was into business and other corporate sectors. Therefore, it was not a subject of priority in the education sector. But the situation is changing with the recommendations of NPE-1986 where emphasis has been laid on the need for professionalisation of educational management. In view of improving the quality of education, it is quite essential to have a review and analyse research in educational management for various resources, such as

- Developing clear understanding of managerial difficulties.
- Understanding issues and concerns related to service.
- Developing a conceptual framework for the benefit of educational structure.
- Identifying difficulties in bringing effectiveness in management system of education.

Analysis of research in educational management

Success of implementation of any policy would be a function of its management process. It would be an essential requirement to examine the studies that have already been done by experts and researchers. Table 20.1 presents classification of researches in educational management in the first three surveys of Research in Educational Management.

Table 20.1: Classification of Researches in Educational Management

S.No	Survey I	Survey II	Survey III
1	Education authority or agencies	Educational agencies	History and development of educational institutions
2	Inspection and supervision	Inspection & supervision	Administration & organization of institutions
3	Different branches of education	Stage of education	Supervision and teaching methods
4	Educational problems such as compulsory education, wastage & stagnation	Organization and planning	Wastage, stagnation and dropout
5	Organization and planning	Organisational climate and teacher morale	Psycho-social, factors/aspects of teachers
6	Organizational behaviour	Policies and reforms, teachers problems and attitudes etc.	Special institutions Studies on universal elem. education, medium of instruction, effectiveness if N.C.C. programmes, manpower, nutrition for pre-scholars, etc.
7	Education policy, reforms, teacher's participation in school administration, teacher organizations etc.		

Source: Fourth Survey of Research in Educational management a trend report, NCERT Publications.

To get a clear picture of the researches, it is essential to have an understanding of the various aspects of the analysis of the content of research. Table 20.2 presents analysis of content of abstracts provided in the first three surveys of educational management in the surveys of Researches in Education by NCERT, India.

Table 20.2: Analysis of Content of Abstracts of Research in Educational Management

S.No	Survey I	Survey II	Survey III
1	Administration of schools agencies	Administrative behaviour, administrative climate	Academic achievement, administrative coordination, administrative process, aggregate approach.
2	Attitude of teachers	Attitude of teachers	
3	Conditions of pre-primary education	Centre-State relations in education; classroom climate	
4		Communication	
5	Dropouts	Dropouts	
6	Evaluation criteria for school inspection	Educational facilities	
7	Evaluation of different educational settings	Educational planning	
8	Evaluation of Govt. educational policies	Evaluation	Educational Management
9		Evaluation of teacher training programmes	• Educational status • Expenditure on education • Educational planning • Educational structure • Evaluation of education structure & management practices • Educational facilities • Educational agencies • Educational forecast • Effective communication • Educational environment • Institutional Environment • Home Environment • Examination Committees • Admission policy
10		Historical: evaluation of education	
11		Human relations	Human attitude and values

12	Implementation	Inspection institutional improvement	• Industrial-polytechnic collaboration • Implementation • Innovation • Innovations in teaching methods • Insufficient equipment • Inefficient functioning	Quality Concerns and Issues for Research
13	Job-satisfaction of teachers	Job motivation	Leadership aspects of supervision	
14	Leadership role	Leadership behaviour	Leadership training programmes Lack of specialization, staff	

Source: Fourth survey of research in educational management a trend report, NCERT, India.

Analysis of the above tables 20.1 & 20.2 will help us to identify the types and nature of problems and variables studied in the field of educational management. It is clearly evident that large number of studies in the areas of organizational processes and behavioral aspects have been conducted. But there are many more areas of management which have yet to be explored. Similarly the aspects covered are unrelated, scattered, thus need indepth research exploration to arrive at indepth and relevant trends for policy makers for quality improvement in educational management.

The structure and process of management of education is influenced by the developments arising out of implementation of National Policy of Education 1986 and 1992 (revised). It is disheartening to find to see that there has been a decline in the number of studies on educational management over the years. Analysis the studies conducted so far could be classified under two broad aspects namely; i) history and status, planning, special groups and special problems; and ii) goals of management, decentralization, participation, professionalism, autonomy, accountability, structures, behavioral aspects, resources, practices, legal supports and personnel.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

1. State the need of review of research studies in educational management.

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2. On the basis of your understanding of researches in educational management state emerging areas of research in this area.

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20.4 ISSUES AND CONCERNS FOR RESEARCH IN EDUCATIONAL MANAGEMENT

Research and development are two sides of the same coin. This is equally true for educational management also. Though many studies have been undertaken in this area of study during last few decades but there are certain issues that need special attention for facilitating researchers to undertake quality study in educational management. The specific issues which need to be addressed for accelerating the process of research, development and extension in educational management are:

- Developing a pre-requisite for managerial position in the field of educational management.
- Establishing set of criteria for research in educational management.
- Establishing criteria for undertaking research in educational management.
- Criteria of assessing research findings.
- Assessing quality in practice-based research in educational management.
- Initiatives related to applied research in the field of educational management.
- Explore understanding on the use of different modalities for research in educational management.
- Lack of thrust area under researches in the management in educational field and at the same time neglect of key areas like systemic management, strategy, philosophical foundation in the research studies in the area of educational management etc.
- Absence of due orientation of researchers in conducting research studies in educational management.
- Lack of quality research studies in the area.
- Minimum professional support system for undertaking research in educational management.
- Developing need based professional approach to research studies in the educational management.
- Assessment of the validity, adequacy reliability of, research findings in educational management.
- Due consideration in research methodology is another crucial issues in educational management.

It has been observed that large number of research studies are in the areas of process of organization or behavioural aspects whereas there are hardly any researches in other aspects. At the same time, it is evident that many such studies in the organizational behaviour area are influenced by the availability of standard research instruments.

20.4.1 Research in Educational Management

Management of education at different levels aims at maximising output in terms of learning achievement of children. Functionaries associated with effective management education should be adequately trained in the changed scenario. Educational management planning is quite different from industrial management planning. It

demands strategic approaches for the national development and reconstruction. This is considered to be in initial stages. Research and development in educational management has not been given due priority yet. As you may be aware of that research in educational management requires certain special ability, aptitude and interests on the part of researcher but in our country, this is one of the neglected area. Research in this field should include utilization aspects and cater to the need of excellence.

20.4.2 Priority areas of research in educational management

Some broad areas of research which need immediate attention for continuous updation and up gradation of institutions and its functioning in the field of educational management are as follows:

- Systemic planning for educational management at different levels.
- Assessment and accreditation of educational institutions.
- Performance of management in different kinds of educational institutions.
- Disciplinary approaches in management of education.
- Effectiveness of implementation approaches and reform processes and practices in the field of education.
- Educational planning at different levels.
- Functioning of state level boards/councils/universities in the management of education.
- Alternative and innovative forms of education for inclusive growth.
- Delivery strategy/mechanism of school boards and councils.
- Functioning of NGOs and other institutions in educational planning and management.
- Management of change and quality in education.
- Globalization and its impact on educational administration and management in the country.
- Reforms in educational system and its management in 21st Century.
- Policy research in educational management and administration at all levels.
- Management of school education and quality parameters.
- Functioning of national and state level institutions at the grassroot level functionaries.
- Decentralization of educational programmes and policies.
- Innovations in educational management at different levels.

There are many more areas which required immediate attention of researchers in the field of education management. Practically it is not possible to list the whole. National resources must be utilized effectively for bringing out a desired change in the field of education through systemic planning and its execution.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

3. State three limitations in the areas of educational management in our country.

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4. What are the new dimension of research in educational management ?

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20.5 EDUCATIONAL INSTITUTIONS AND RESEARCH IN EDUCATIONAL MANAGEMENT

Large numbers of educational institutions are associated with research and innovations in educational management. Though different institutions have their own goals but they are interdependent and interrelated. Pertaining to the development of systemic management in education, the basic thrust of research in educational management is to ensure institutional sustainability with high quality. National institutions like National University of Educational Planning and Administration (NUEPA), National Council of Educational Research and Training (NCERT), University Grants Commissions (UGC), National Council for Teacher Education (NCTE), Indira Gandhi National Open University (IGNOU) and international organizations like UNICEF, UNESCO, World Bank, etc, focus on research and extension in educational management and associated with the development of bench mark in quality assurance and accreditation system.

Research and innovations provide vision and help us to move towards achievement of the goals. Focusing on research and innovations in the field of educational management should be the major concerns of all academics and educational administrators, planners and implementers. Certainly this aspect linked to innovations in curriculum, in institutional management and in teaching learning strategies as well. The reality is that today institutional focus on quality research and its integration needs reviewing. Exploiting the creativity of students and their research potentials is a real challenge. Supporting and motivating students to bring innovations in the design and development of their thoughts should be given priority in all educational institutions for the development of better system of management in the field of education.

Facilitating research in educational management

Today there is an increasing in demand for trained human resource for quality research and development in educational institutions. National level institutions like NCERT, NUEPA, IGNOU, UGC, DEC, etc., can play a major role in preparing individuals and institutions to meet the demand of the society. These institutions

provide financial assistance to other institutions and individuals for undertaking quality research for meeting the challenges of effective management of educational institutions. Promotion of research in educational management is essential for improving quality of functioning and mode of delivery system. Certain common strategies to facilitate research in educational management are as follows:

- Ensuring participation of faculty in developmental programmes, workshops and conferences for up-dating and up grading their knowledge and skills in undertaking research.
- Providing financial assistance to faculty in exploring new ideas in the field of educational management and administration.
- Encouraging provision of grants and other facilities with academic, administrative and financial autonomy to the educational institutions to undertake research in educational management.
- Motivating students, research scholars and other stockholders to undertake research in different aspects of educational management.
- Focusing more on functions like planning, organization and coordination of educational institutions.
- Reorienting the research strategies towards developing excellence in educational management.
- Promoting training and orientation of functionaries associated with functioning of educational management and administration.
- Understanding the significance of research in the field of educational management.
- Developing collaboration with NGOs and other organizations for promoting research in educational management.
- Promoting research centers for exploring knowledge.
- Focusing on research based teaching learning processes which can certainly facilitate vertical integration.
- Identifying the priority areas of research in educational management with the view to improve systemic strategies.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

5. Mention the role of national level institutions in providing support to undertake research on educational management.

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6. List the benchmark for improving quality of research in educational management.

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20.6 QUALITY DIMENSIONS IN RESEARCH OF EDUCATIONAL MANAGEMENT

Quality of research in educational management and administration is an index of development of education. Assessment of research quality must be in accordance with appropriateness of methodology, contribution to the growth and development of institutional and individuals, and cost effectiveness.

A research study in the field of educational management needs to be evaluated in terms of its value for practitioners and policy makers, and its contribution to knowledge as well.

Quality indicators in research and development

National level organizations and institutions like NUEPA, UGC, DEC, NCERT, etc., should effectively collaborate with one another and develop modalities for improving quality of research in educational management and administration. At the same time they can develop some indicators for improving quality of research and development in the area of educational management. Some of the dimensions are :

- Continuous professional of the faculty who undertakes and uses product of research.
- Motivation to faculty for undertaking innovative practices under educational practices (practice-based research in educational management).
- Potential value for use of research product i.e. focus on being of use.
- Respond to the need of target group and focus on appropriate specification.
- Link to development with reference to the design of appropriate research questions.
- Development of computers and value for people.
- Development of partnership, collaboration and engagement with institutions.
- Accepting the viewpoint of practitioners and policy makers.
- Originality in terms of nature of work and efficiency in terms of value judgment.

Check Your Progress

Note : a) Space is given below for writing your answers.

b) Check your answers with those given at the end of this unit.

7. List the dimensions of research in educational management.

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8. State the indicators of research in educational management for improving its quality.

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20.7 LET US SUM UP

Research is an important aspect of quality practice in every field of education. It aims at contributing to knowledge and bringing development for strategies, techniques and functioning of institutions and organizations. The thrust of this unit is to facilitate institutions in undertaking quality research projects in the field of educational management in one hand and exploring priority areas which need immediate attention on the part of researchers, policy makers and administrators for strengthening services in the field of educational management and administrations.

20.8 UNIT END ACTIVITIES

1. Critically discuss the indicators for improving the quality of research in educational Management.
2. Discuss the scope of educational management in Indian context.
3. Explain the role of national institutions/organizations in facilitating research in educational management.

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20.10 ANSWERS TO CHECK YOUR PROGRESS

1.
 - Understanding of researcher on the area of research.
 - Developing analytical framework for the proposed study.
 - Searching the need for the proposed study.
 - Providing basic foundation for the study.

2.
 - a. Operational aspects of educational management.
 - b. Professional development of functions associated at various level of educational management.
 - c. support services/ and its integration for effective implementation.
3. Ref. subsection 20.4.2
4. Limited scope on the
 - Development of new research tool/instruments.
 - Motivational aspect of researcher in educational management.
 - Low priority to research and development in educational management.
5.
 - Providing financial support to institutions for undertaking research.
 - Offering scholarship to researchers.
 - Exploring new scope in the field of educational management.
6. Ref. subsection 20.5.1
7. Ref. subsection 20.3.1
8. Ref. subsection 20.6.1

MES-044 Institutional Management

Block-1 Management of Curriculum

- Unit-1 Classroom Management (Instructional Management)
- Unit-2 Curriculum Transaction
- Unit-3 Management of Evaluation
- Unit-4 Management of Academic Resources
- Unit-5 Management of Curricular & Co-curricular Programmes & Activities

Block-2 Management of Financial Resources

- Unit-6 Educational Finance: Meaning, Importance and Scope
- Unit-7 Cost and Budgeting
- Unit-8 Accounting and Auditing
- Unit-9 Resource Mobilization

Block- 3 Management of Human and Administrative Resources

- Unit-10 Management of Student Support System
- Unit-11 Management of Administrative Resources
- Unit-12 Management of Human Resources

Block-4 Management of Infrastructure

- Unit-13 Concept, Importance, Need
- Unit-14 Management of Physical Resources
- Unit-15 Utilization of Infra-structural Resources

Block-5 Total Quality Management

- Unit-16 Quality Control, Quality Assurance and Indicators
 - Unit-17 Tools of Management
 - Unit-18 Strategies for Quality Improvement
 - Unit-19 Role of different Agencies
 - Unit-20 Quality Concerns and Issues for Research
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