

**EFFECTIVENESS OF COMPETENCY BASED  
INSTRUCTION IN THE ATTAINMENT OF MASTERY  
LEVEL LEARNING  
IN ACCOUNTANCY AMONG HIGHER SECONDARY  
SCHOOL STUDENTS**

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**Thesis**

**Submitted for the award of the Degree of  
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# CERTIFICATE

I, **Dr. P. Kelu**, do hereby certify that this Thesis, “**EFFECTIVENESS OF COMPETENCY BASED INSTRUCTION IN THE ATTAINMENT OF MASTERY LEVEL LEARNING IN ACCOUNTANCY AMONG HIGHER SECONDARY SCHOOL STUDENTS**” is a record of bonafide study and research carried out by **Mr. Santhosh Areekkuzhiyil** under my supervision and guidance.

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# DECLARATION

I, Santhosh Areekkuzhiyil, do hereby declare that this thesis **“EFFECTIVENESS OF COMPETENCY BASED INSTRUCTION IN THE ATTAINMENT OF MASTERY LEVEL LEARNING IN ACCOUNTANCY AMONG HIGHER SECONDARY SCHOOL STUDENTS”** has not been submitted by me for the award of a Degree, Diploma, Title or Recognition before.

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12 - 12 - 08

**Areekkuzhiyil**

**Santhosh**

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# **INTRODUCTION**

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# **INTRODUCTION**

In a world shrinking fast into a global village characterised by knowledge, technology and industries taking off at top speed and information highways opening up new vistas of prospects, the profile of education would be quite different. Our educational system has been criticised on many accounts, particularly for its quality. The contemporary system of education has become mechanical as it stuffs the young mind with dry information leaving little scope for independent thinking and competence development. The nature and need of the child is not taken in to consideration. Freire (1970) describe this type of education as ‘Banking System of Education’, in which the teachers deposit knowledge into the pupil bank. Yeshpal Committee (1993) emphasised that major cause of poor quality in school education is the problem of what is termed as ‘load of non-comprehension’.

In this age of information explosion all education is re-examining itself and restructuring its programmes. Education is the key to national prosperity and welfare. Recognising the urgent need for rectifying the anomalous condition with respect to quality, National Policy on Education 1986, calls for paying immediate attention to laying down minimum levels of learning that all children completing different stages of education should achieve.

## **1.1. NEED AND SIGNIFICANCE OF THE STUDY**

The goal of education is to enable the individual to acquire the desired knowledge, skills, habits, attitudes and values. To help our students achieve this goal we need to identify the most essential competencies, attitudes and values, rather than learning facts and information. Learning is not a collection of information and memorising it. It is an outcome of experience in real life situations, supported and strengthened by related class room work.

The critical purpose of post secondary education is to prepare the students for their future professional lives. Meeting this purpose require supporting the students in developing deep understanding of their disciplines. To meet the post secondary education goals of developing students' professional expertise, teaching should be done in a manner consistent with finding an expert performance in domains that are relevant.

Achieving well-defined standards of learning by students in school is a powerful success indicator of the system that works. Learning is not mere acquisition of information. It should evident from the specific outcomes that emerge as a result of learning situations. These learning situations have to be meaningful to the learners to enables them to acquire the desired competencies. Thus the desired learning culminates or converges into a 'core of competencies', which are to be acquired by all learners.

There has been an increasing gap between what has been imparted to students through accountancy curriculum and what has been really expected from the industry and job market. So accountancy education

needs reforms with regard to curriculum, teaching, learning and evaluation so as to meet the ever changing employment market requirements.

Studies have shown that the commerce and accountancy education in the country is not satisfactory and it is inefficient to a certain extent. The students get only theoretical knowledge in accountancy and other commerce subjects and they lack functional competencies in their discipline. Each level of learning consists of a number of competencies of its different area of study and each competency requires a particular teaching learning approach for its attainment.

In traditional teaching learning method, the students learn facts by rote and they are tested from time to time but such tests are neither concerned with conceptual development or performance ability of the students. Learners' abilities were neglected.

There appears to be substantial support for competency-based instruction. Norton (1987) believes that competency-based training should be used as opposed to the "medieval concept of time-based learning." Foyster (1990) argues that using the traditional "school" model for training is inefficient. After in-depth examinations of three competency-based programs, Anthony Watson (1990) concluded that competency-based instruction has tremendous potential for training in industry. Moreover, in a 1990 study of basic skills education programs in business and industry, Paul Delker found that successful training programs were competency-based. Watson (1990) states that the competency-based approach "appears especially useful in

training situations where trainees have to attain a small number of specific and job-related competencies”

Learners acquire competencies fast through the activities designed to put across in a painless way, in other words learning must be fun. Games, group works and activities can help to introduce new concepts and enable learners to develop thinking skills and to master the competencies. A learner should achieve mastery at each stage of learning before going to the next stage.

The basic promise of mastery of competencies is that virtually all children can master most of what is being taught in the classroom. The mastery of competency has changed the basic concept of classroom learning, needs much more research attention for its effective implication in our contemporary teaching-learning situation. Competency Based Instruction is a new approach to teaching, having as its core, the ideas of accountability and competencies. The teacher is held responsible for attaining a given level of competency in performing the essential tasks of learning. Learners’ progress rate depends on demonstrated competencies. The emphasis is laid on exit and not on entrance requirements. Further the focus is being on acquisition of specific competencies by all learners.

A large number of studies that show the advantage of competency based instruction can be cited. Norton, Robert E. (1989), Foyster (1990), Delker (1990), Preston, Janet E.& Kunz, Margie H (1990, Lowrie, Tom; Hill, Doug; Smith, Erica (1999), Tillema, H. H.; Kessels, J. W. M. & Meijers, F

(2000), Jiang, Mingming; Shrader, Vincent, (2001), Lynch, David H.; Murranka, Patricia (2002) and Chyung, Seung Youn; Stepich, Donald & Cox, David, (2006) show that competency based instruction is more useful for effective learning than prevailing method of teaching.

When the investigator reviewed all the available literature even though there are studies which show the effectiveness of the competency based instruction, no studies were found to verify the effectiveness of competency based instruction in attaining the mastery level learning in accountancy.

In this background the present study is designed to verify the effectiveness of competency based instruction in the attainment of mastery level learning in accountancy among higher secondary school students. The study identifies the competencies to be mastered by the students of accountancy at higher secondary level.

## **1.2. STATEMENT OF THE PROBLEM**

Accountancy being a professional subject demands a number of competencies from the practitioners. Hence the students of accountancy are required to master the basic competencies in accountancy at the higher secondary level, which work as a platform for higher level studies and for entry level employment. But the conventional method of teaching accountancy, which is dominated by the teacher talk, does not yield much benefit to the learners.

In this context the search for alternative strategies to the teaching accountancy is very important. Which are the effective methods and approaches to the teaching of accountancy? How these strategies can be executed in the formal classrooms? Are they effective in inculcating the required abilities and attitudes among the learners? What are the prerequisite and preparations required for organising such a teaching learning environment? Are there any empirical evidences for their usefulness? These are the questions that confront educational practitioners in switching over to another instructional strategy.

The investigator who has experience in teaching of accountancy, development of instructional modules and teaching of instructional strategies assume that competency based instruction are better than conventional methods of teaching accountancy. The analysis of the theory and research relating to competency based instruction suggest the use of modules, games, and case method for development of the pre-determined competencies among the learners. Considering the special nature of the subject and the reviews of empirical studies, it is also assumed that the modular approach will be more useful in imparting Competency Based Instruction in accountancy in the Indian context. Based on these assumptions the problem for the present study has been formulated as:

**“EFFECTIVENESS OF COMPETENCY BASED INSTRUCTION  
IN THE ATTAINMENT OF MASTERY LEVEL LEARNING IN**

## ACCOUNTANCY AMONG HIGHER SECONDARY SCHOOL STUDENTS”

### 1.3. DEFINITION OF THE KEY TERMS

The key terms used for the purpose of stating the problem have been defined below.

#### 1.3.1. Effectiveness

Effectiveness means result or outcome. For the present study ‘effectiveness’ refers to preponderance or superiority of an instructional approach in creating the desired outcome.

#### 1.3.2. Competency

Competence refers to a state of being well qualified to perform an activity, task, or job function. Competence is the state of having and demonstrating skills, abilities or aptitudes in the satisfactory execution of a learning task.

*(Encyclopaedic Dictionary of Education, 1984)*

Competencies are skills or Knowledge identified by professionals in a particular field as being essential for mastery of that field. In the present study Competency means a task that is performed to a certain standard. It reflects action, behaviour or outcomes in a form that is capable of demonstration, observation or verification.

According to the International Board of Standards for Training, Performance and Instruction (IBSTPI), a competency involves a related set of knowledge, skills, and attitudes that enables a person to effectively perform the activities of a given occupation or function in such a way that meets or exceeds the standards expected in a particular profession or work setting.

### **1.3.3. Competency Based Instruction**

Competency Based Instruction is the term used to describe the education that prepares the students to perform essential tasks at a stated standard. It is an approach to instruction based on the philosophy that "given appropriate instruction, time, and conditions, almost all learners can and will learn most of what they are taught."

### **1.3.4. Mastery Level Learning**

In operational terms eighty percentage achievement of a particular competency area is the performance target of mastery level learning. The learners should attain minimum eighty percentages of the materials to master a particular area.

## **1.4. VARIABLES OF THE STUDY**

The present study involves the following variables.

### **1.4.1. Independent Variables**

The Independent Variables selected for the present study are the two types of instructional strategies. They are:

- i. *Competency Based Instruction (CBI) and*

- ii. *Conventional Method of Teaching (CMT)*

#### **1.4.2. Dependent Variables**

The following dependent variables have been considered in the present study. They are:

- i. *Mastery level learning in accountancy*
- ii. *Attitude of students towards accountancy*
- iii. *Self esteem of the students*

#### **1.5. OBJECTIVES OF THE STUDY**

The present study is aimed at finding the effectiveness of the Competency Based Instruction over the Conventional Method of Teaching. It is assumed that the student mastery of competencies in accountancy depends upon the methods of teaching adopted. The following specific objectives are formulated for the study.

1. To identify the major competencies to be mastered by students in accountancy at higher secondary level
2. To identify the sub competencies to be acquired by the students for the mastery of each of the competencies in Accountancy
3. To develop competency based instructional modules for mastery of selected competencies in accountancy.
4. To study the effectiveness of the competency based instruction (CBI) and conventional method of teaching (CMT) in the mastery of competencies in accountancy

5. To study the effect of the competency based approach to teaching accountancy on the self esteem of the students
6. To study whether the competency based approach to teaching accountancy influence the attitude of the students towards accountancy.

### **1.6. HYPOTHESES**

As mentioned earlier, the present study aimed at finding the effectiveness of Competency Based Instruction in the attainment of mastery level learning in accountancy among the higher secondary school students. Based on the objectives of the study the following hypotheses are formulated.

1. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of competencies in accountancy
2. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of cognitive competencies in accountancy
3. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of performance competencies in accountancy

4. There is no significant difference between the percentage of masters of competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
5. There is no significant difference between the percentage of masters of cognitive competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
6. There is no significant difference between the percentage of masters of performance competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
7. There is no significant gender difference in respect of mastery of competencies in accountancy.
8. The Competency Based Instruction (CBI) has no significant impact on the attitude of students towards accountancy
9. The Competency Based Instruction (CBI) has no significant impact on the self esteem of students.

## **1.7. METHODOLOGY**

The methodology adopted for the present study has been briefly described below.

### **1.7.1. Identification of Competencies**

As the details of competencies to be mastered by the higher secondary students in accountancy are not readily available the investigator identified the competencies. The identification of the competencies involves the following strategies.

#### ***1.7.1.1. Document Analysis***

For the purpose of identifying the competencies in Accountancy, the investigator analysed the curriculum prescribed for higher secondary course by the NCERT and SCERT (Kerala). The competencies and sub competencies of each of the areas in accountancy of higher secondary course has been identified. Detailed discussion with experts and working teachers has been conducted by the investigator in advance before preparing the draft of competencies.

#### ***1.7.1.2. Workshop of Teachers***

After preparing the draft of the list of competencies, the investigator conducted workshop of higher secondary school commerce teachers. 50 higher secondary school teachers and 5 teacher educators were participated in the workshop.

#### ***1.7.1.3. Consultation with Experts***

The draft competencies formulated through curriculum analysis and workshop has been submitted to the members of the panel. The modifications and suggestions made by the experts were incorporated and hence the list of competencies has been finalised.

#### **1.7.1.4. Analysis of Observations on Identified Competencies**

To verify the quality of competency statements it was decided to evaluate them in respect of the essential attributes. An observation schedule has been developed for this proposes. The tool consists of twenty statements expressing the observations of higher secondary commerce teachers regarding the quality of identified competencies.

#### **1.7.2. Development of Competency Based Instructional Modules**

Since the Competency Based Instructional Modules in Accountancy for the higher secondary level were not available, the investigator developed the same. For the preparation of modules three areas in accountancy has been selected, which constitute the basic accounting cycle from recoding of transactions to the preparation of financial statements. The areas are: (i) Origin and Recording of Transactions (ii) Trial Balance and (iii) Financial Statements. The competencies and sub competencies identified from these areas of accountancy has been used as the base for preparing the modules. Fourteen modules have been developed by the investigator.

#### **1.7.3. Experimentation**

The main purpose of the study was to compare the effectiveness of competency based instruction over the conventional method of teaching. Experimental method was adopted to study the effectiveness of competency based instruction. The subjects were assigned to control group and experimental group. After conducting pretest the treatment has been given to

the experimental group. Then posttest administration is made and if any difference, is attributed to the experiment or treatment.

#### **1.7.4. Study Design**

The present study is designed as developmental cum experimental study. The competencies in accountancy to be mastered by the students were identified and modules for imparting Competency Based Instruction were developed before starting the treatment. For the purpose of verifying the effectiveness of competency based instruction, ‘Non-randomised Control Group, Pretest Posttest’ design was used. The experimental group has been treated with Competency Based Instruction and the control group has been treated with Conventional Method of Teaching.

#### **1.7.5. Sample Design**

Care had been taken to ensure that the samples selected were equivalent in many respects. It was decided to select co-educational schools for experimentation. It was also ensured that almost equal number of boys and girls were included in the sample. For the present study multi stage sampling technique was adopted to select the required sample. In the first level one district was select using convenient sampling techniques. From this districts the list of higher secondary schools with similar academic environment were identified. From among these schools four schools were selected in the second stage. As in each school there was only one commerce batch the entire class was taken together. The assignment of classes into control and experiemtnal

groups was done randomly. The total sample consists of 240 students of higher secondary school commerce classes.

### **1.8. TOOLS USED**

The following tools have been used for the experiment and data collection in the present study.

- i. Prerequisite Test (Entry Behaviour Test) in Accountancy
- ii. Competency Based Instructional Modules (Developed by the Investigator)
- iii. Learning activities for Conventional Method of Teaching (Adopted from Higher Secondary School teachers' Sourcebook published by SCERT, Kerala)
- iii. Criterion Referenced Achievement Test in Accountancy (Developed by the Investigator)
- iv. Self Esteem Inventory
- v. Accountancy Attitude Scale (Developed by the Investigator)

### **1.9. ANALYSIS OF DATA**

The collected data has been analysed both descriptively and inferentially. For the purpose of analysis of data, statistical techniques like percentages, averages, test of significance of difference between means, test of significance of difference between percentages etc. were applied in the present study.

### **1.10. SCOPE AND LIMITATIONS**

The major objective of the study is to verify the effectiveness of competency based instruction in the attainment of mastery level learning in accountancy among higher secondary school students. As a prerequisite, the study also identified the competencies and sub-competencies to be mastered by higher secondary students in accountancy. The study compared the two instructional methods viz. the competency based instruction and conventional method of teaching in respect of the mastery of competencies in accountancy. The influence of these strategies on the self esteem and attitude towards accountancy were also verified.

The experimental method was found suitable for the present study. 225 students were participated in the experiment. The investigator selected four intact groups of standard XI. The main limitations of the study are:

- i. The study is confined to higher secondary stage only.
- ii. The study has been conducted with nonrandomised intact class groups.
- iii. The size of the sample for the purpose of the experiment is limited to four classes of higher secondary school students, due to practical difficulties.
- iv. Modular method has been employed in the present study to impart competency based instruction in accounting. Other methods of imparting competency based instruction were not experimented with the modular approach in the present study.
- v. Only three areas in accountancy were considered for the present study

## **1.9. ORGANISATION OF THE REPORT**

The report of the present study is presented in seven chapters.

Chapter I of the report contains a brief introduction of the problem, need and significance of the study, statement of the problem, definition of key terms, variables, objectives of the study, hypothesis of the study, brief methodology and the scope and limitations of the study.

Chapter II gives the theoretical overview of the Competency Based Instruction.

Chapter III deals with the detailed review of the related studies. The related studies were categorised and presented in five sections. They are: (i) studies on identification of competencies (ii) studies on competency based instruction (iii) studies on accountancy (iv) studies on effectiveness of instructional strategies and (v) studies on achievement, attitude and self esteem.

In chapter IV, methodology adopted for the present study and the design of the investigation has been given in detail with the description of the tools selected and constructed for the purpose of the study.

The V<sup>th</sup> chapter present the competencies and subcompetencies in accountancy which have been identified as part of the investigation that is to be mastered by the students at higher secondary level. This chapter also present the analysis of the teachers' observation about the essential attributes of the identified competencies.

The VI<sup>th</sup> chapter deals with the analysis of the experimental data. The collected data were presented in tables and graphically and the inferences made are presented in this chapter.

The last chapter gives the summary, major findings and suggestions based on the present study.

# COMPETENCY BASED INSTRUCTION A THEORETICAL OVERVIEW

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- 2.1. The Origin of Competency Based Instruction
  - 2.2. What is Competency Based Instruction?
  - 2.3. Essential Elements of Competency Based Instruction
  - 2.4. Characteristics of Competency Based Instruction
  - 2.5. Development of Competency Based Instruction
  - 2.6. Essential Attributes of Competencies
  - 2.7. Mastery of Competencies
-

# **COMPETENCY BASED INSTRUCTION**

## **A THEORETICAL OVERVIEW**

In spite of great advance in knowledge about learning and tremendous amount of time, effort and money, our education still have not moved very far toward the goal of increased learning for all learners. Schools continue to provide successful and rewarding learning experience for one third of the learners. The policy makers are searching for ways to reduce the gap between the existing and desired quality of school learning. As an approach to teaching, Competency Based Instruction emphasizes mastery of competencies by each of the learners.

Webster's Third New International Dictionary, has defined competence as "the quality or state of being functionally adequate or having sufficient knowledge, judgment, skill or strength (as for a particular duty or in a particular respect)." Jarvis explains the concept in terms of its components i.e., knowledge, skill and attitudes. He has elaborated on these components as: Knowledge and understanding of the academic discipline, skills and the moral values and professionalism. Skills involve the ability to perform the various psychomotor tasks and interact with others. Professional attitudes comprise the emotive commitment to professionalism and the willingness to perform professionally.

'There is no single version of best practice. In this backdrop, different definitions were available for the term 'competency'. It is defined differently

for different occupations. Wiles & Bondi, (1989) says 'each occupational or professional field needs to develop its own conception and working definition of a competency'. Burke (1989) reiterates that 'each occupational/professional field needs to develop its own concept of a competency-based curriculum'. Therefore, in the context of the unique educational system of India and discussions with the industry, the following definition of competency was relevant to the accountancy education system. This definition evolved is also based on the concept of 'threshold competencies' (Hamlin, 1994) to detail out an operational curriculum for the Accountancy education programmes. Thus, the 'competency' is defined here as '*a statement which describes the integrated demonstration of a cluster of related skills and attitudes that are observable and measurable necessary to perform a job independently at a prescribed proficiency level*' (Earnest, 1997). This definition is illustrated in Figure 1 as a complete system comprising of several sub-systems required performing a given job or task proficiently.

For industry, the competency logically precipitates out in terms of broad skills and sub skills about the job being performed there. While in academic context it is in terms of practical skills, cognitive skills and social skill (attitudes) to be developed in the students. It implies the following.

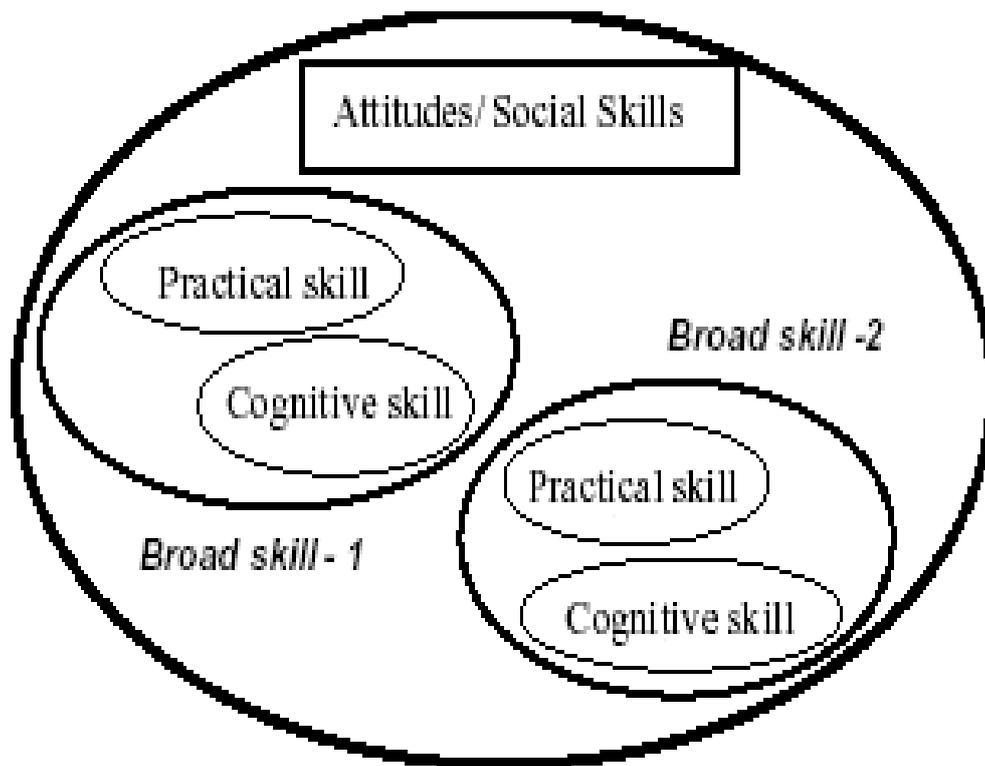
- The competency is an overt and measurable performance in terms of quantity, quality, time, cost or a combination of any of these, for which 'action' or 'performance' oriented verbs are to be used in writing competency statements.

- A cluster of skills consisting of cognitive(intellectual) skills, practical skills and social skills/attitudes, skillfully weaved together into a whole.
- The skills also involves higher order cognitive skills of Bloom's (1956) taxonomy required to analyse, interpret, design, evaluate, create, plan, troubleshoot, diagnose etc. as well as lower level practical skills of Dave's (1966) taxonomy such as cut, join, machine, measure, solder, paint etc.
- A 'job' is an activity, which has a definite beginning and ending point, that can be performed over a short period of time, independent of other work and which results in a product, service or decision (TAFE, 1988).
- 'Perform' a job at a specified proficiency, means performing a given job successfully every time he/she is asked to do. In other words, tending towards more 'reliability' and 'validity'.

David Pratt (1980) defines an 'aim' as something, which provides a basic orientation to the designer/user of a curriculum. The starting point of any curriculum development programme rests on the aims of any educational programme. The aims are slogans that excite people about the direction of education. They are orientations - not specific quantifiable outcomes. As the aims are of global quality, only a few aims are necessary to guide education.

**Fig. 2.1**

**Concept of a Competency**



‘Goals’, in contrast to aims, are not open statements. The distinction between aims and goals of education is one of generality (Ornstein, 1988). They are more specific statements written, so that, those responsible for educational or training programme creation can use them as guidelines to achieve particular purposes. Goals are derived from the aims and provide curriculum decision makers and teachers with broad statements of what they should accomplish in terms of student learning as a result of a particular course or educational programme. Generally, they are more in number than aims. They are ‘broadcast statements’ that indicate endpoints or expected outcomes of an educational programme.

Figure 2.2 depicts a continuum, wherein, aims are at one end, followed by goals, competencies and different types of skills at the other end. Instructional objectives are behavioral descriptions of learning outcomes in terms of different types of 'skills'- practical skills, cognitive skills and attitudes. On this continuum of aims to skills, competencies lie somewhere in between them. Another way of depicting these concepts could be through figure 2.3 (Hall, 1976, Soni, 1999).

For any particular educational programme, the goals, which are derived from the aims, will comparatively have more number of statements generally meant for a whole identified from the industry on the basis of the declared goals will be much more in number and could represent several courses or organised bodies of knowledge. Further, each competency consists of broad skills and relatively more sub-skills (which includes practical skills + cognitive skill + social skills/attitudes).

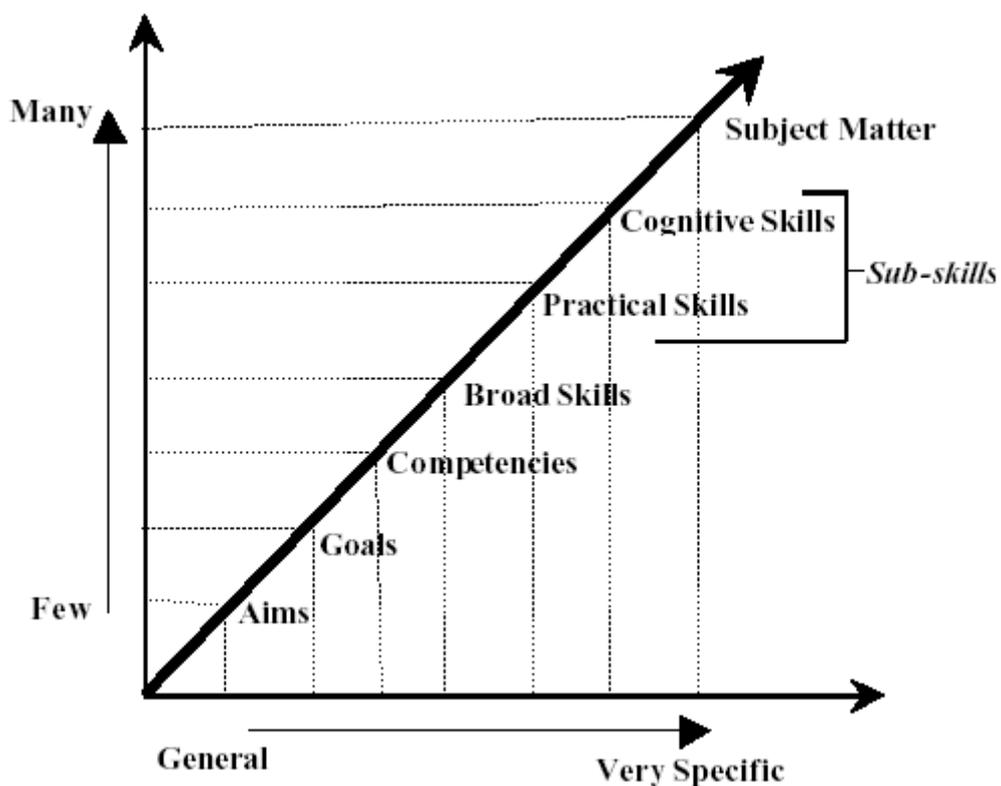
**Fig. 2.2**

**Competency Continuum**



Fig. 2.3

**Aim- Competency Relationship**



**2.1. THE ORIGIN OF COMPETENCY BASED INSTRUCTION**

Competency-based instruction is an approach to developing curricula from an analysis of roles to be filled on completion of the educational

program. Rather than exams that simply assess mastery of course material, the focus is on the ability of students to demonstrate proficiency or competency in these external roles.

The competency-based education movement started in the early 1970s as an education initiative for a more effective and practically useful curriculum. Currently, businesses have shown an interest in competency-based programs for the training of their technical employees, while liberal arts colleges have used competencies to focus on the communication and critical thinking skills that they seek to impart on their degree recipients. In addition, a competency-based education framework is being used by some colleges, universities, and distance education providers to facilitate the educational re-entry of adult learners by granting credit for life experience. Most broadly, competency-based education is an educational reform that seeks a closer fit between higher education and the needs of society for both skilled employees and capable citizens.

In dynamic global, national and state economies with tightening resources and changing demographics, there is a need to provide potential workers with an increasingly complex set of basic skills in order to guarantee a well qualified future workforce. In such an environment, there is a growing need for flexible, tailor made educational programmes that addresses individual needs and to integrate learning and working environment. (Westera& Sloep, 1998). Therefore, the classical ideals of erudition and scholarship, with a major emphasis on knowledge of facts, had better be

replaced by an educational system that supports the acquisition of skills or competencies (Westera& Sloep, 1998). Hence, there is a need for competency based instruction.

## **2.2. WHAT IS COMPETENCY BASED INSTRUCTION?**

A competency-based instruction system is a specialized and systematic method of organizing skill-specific instruction. Central to a competency-based technique of instruction is the requirement that the majority of learning activities be centered on and keyed to the development of pre stated competencies. The core of a competency-based instruction system is that all activity in the classroom and laboratory is focused on developing pre stated competencies by using structured learning activities.

Competency based education is a systematic yet flexible approach to organizing instruction. This approach focuses on defining in measurable terms what students are to learn and then evaluating how well they can perform designated tasks after instruction. Expected behaviors or tasks, conditions for their performance, and acceptable standards are shared with students prior to instruction. Competencies are based on performance of tasks identified by workers in the given occupation.

The basic component of competency based education is the competency. Competency based education is not a competitive educational concept. Rather it encourages each student to develop to his or her own full capacity. In other words, competency based education is the term used to describe education that prepares the students to perform essential tasks at

stated standards. A competency is a task that is performed to a certain standard. In order for a student to achieve any given competency, it may be necessary for the student to first achieve the sub-competencies that make up that competency. Sub-competencies are the many things that a person must be able to do in order to perform a task up to the standard of a specific competency.

Competence is nothing more than an improved modern term applied to an ancient human value; for example the right way of doing thing is the competent way; the right way of performing a job, the right way to live and work in association and cooperation with others. The qualities of competency are enthusiasm, fluency, industry, neatness, originality, adaptability and thrift. The training for competency has always been and still is largely training for creating abilities or qualities that are placed in actual job situation or context.

Competence does not result from possession of great amount of knowledge. It must become functionally operative at the appropriate time. Knowledge must be integrated into a pattern of behavior to serve a useful purpose. The fundamental idea underlying the competency based programme of education is that education should be directed toward the development of a set of specific competencies, and the student should, at the end of the programme, be able to provide evidence that he can perform each of the competencies. Those who advocate competency based approach indicate their preference for a curriculum that enables individuals to act, to do things or to

apply what they have learnt in a social and material world, and not merely to understand, to analyse or to reflect.

Two divergent educational philosophies have served as theoretical frameworks in designing competency-based programs: the behaviouristic or functional view, and the humanistic (holistic) view. The behaviouristic or functional approach defines roles and builds curricula in terms of highly refined, specifically stated skills. The humanistic approach views life roles from a holistic perspective and builds curricula that incorporate elements of culture, personality, and citizenship. Proponents of humanistic approach believe that education cannot be confined to the narrowly defined and task-specific curriculum, which lacks breadth and inhibits intellectual and moral growth. They claim that the primary purpose of curriculum is to educate students with a full intellectual and social understanding, not simply train them for a specific occupation. Functionalists, on the other hand, suggest that competency in practical skills does not detract from the value of education; rather it enhances the education students receive by assuring them that their efforts will be rewarded in the marketplace.

The Fund for the Improvement of Postsecondary Education (FIPSE) during the 1970s was a major force advocating and supporting competency-based education. It was formed in 1971 as a government foundation to enable colleges and universities to adapt to changing conditions and improve postsecondary education. In fulfillment of its mission, FIPSE announced its special interest in competency-based education in 1974. This decision to focus

on competency-based education was seen by FIPSE as a way to give high priority to the issue of accountability, to the need for more cost-effective education, and to the establishment of a more rational basis for certification. During the 1970s, grants from FIPSE supported a number of colleges and universities in their development of competency-based curricula, and sponsored some related research projects and reports.

A competency-based curriculum includes three components:

- (1) An explicit statement of desired competencies;
- (2) A set of specific procedures for assessing the achievement by students of the competencies; and
- (3) The design of learning experiences that facilitate the achievement of competencies by the students.

Different from other reform initiatives, competency-based education is outcome-directed and assessment-oriented. It initiates a process about the desired outcomes of a college education and the means to assess them. The outcomes are specified in a competency statement, and are broken down into components and subcomponents, which provide more direction to the learning necessary to achieve each competency. Because the expected outcomes are clearly defined, this style of assessment places the emphasis on diagnosis and improvement until competency is achieved. In a traditional educational system, the unit of progression is time and it is teacher centred. In a competency-based system, the unit of progression is mastery of specific knowledge and skills and is learner or participant centred. Individual students,

therefore, can play a pivotal role in deciding when and how often to be assessed.

***Competency based learning includes the following practices:***

- ❖ Course or module content is determined by identifying competencies needed for successful employment.
- ❖ Individual course or module performance objectives are competency statements given to students in course syllabi or modules at the beginning of the learning activity.
- ❖ Subject matter is presented in a variety of ways - large group, small groups, and/or individually with varying time frames to accommodate different learning abilities.
- ❖ Assessment activities measure how well the student mastered the task (compared to criteria), and include paper and pencil, actual demonstration of skills, and electronic documentation.
- ❖ Grades are determined by comparing an individual's performance to pre-specified criteria or standards.

Competency-based instruction has considerable impact on the roles of students and faculty in education and redefines the relationship between them. For students, it demands that they become self-motivated learners who play an active role in their own education.

Students have to demonstrate satisfactory performance and competency in order to fulfill the requirements of the curriculum; they cannot be regarded simply as receptacles to be filled with knowledge. Faculty members must act as mentors (rather than as lecturers) by observing the

performance of students and building interactions with them to facilitate learning toward competency. In addition, faculty must move away from paper and pencil tests of comprehension and design assessments that measure performance in real-life settings. And students and faculty together must recognize that competency-based education is difficult to constrain within the traditional academic calendar. Achieving competency does not necessarily occur within a fifty minutes class or a 15 weeks semester, but instead a range of learning experiences over varying amounts of time may be required before student performance reaches the prescribed level.

### **2.3. ESSENTIAL ELEMENTS OF COMPETENCY BASED INSTRUCTION**

Norton (1987) describes five essential elements of a competency-based system of education:

1. Competencies to be achieved are carefully identified, verified and made public in advance.
2. Criteria to be used in assessing achievement and the conditions under which achievement will be assessed are explicitly stated and made public in advance.
3. The instructional program provides for the individual development and evaluation of each of the competencies specified.
4. Assessment of competency takes the participant's knowledge and attitudes into account but requires actual performance of the competency as the primary source of evidence.

5. Participants progress through the instructional program at their own rate by demonstrating the attainment of the specified competencies.

Competency based education is an approach to instruction based on the philosophy that "given appropriate instruction, time, and conditions, almost all learners can and will learn most of what they are taught." To make this philosophy work, competency-based education uses a very systematic approach to developing and delivering instruction. This approach includes what to teach, how to teach, what to test, how to test, and how to structure student progress through the program.

### **2.3.1. What to Teach**

The first, and probably most important step in the instructional development process is determining what to teach; i.e., the content for a specific program. In the competency based approach to training, the skills to be taught are identified by people who know best what tasks are performed in a given occupation: expert workers in the occupation.

In a competency-based education approach these competencies are made public. Thus, students know exactly what is expected of them. They know, in advance, the specific skills they must attain to succeed, both in the program and on the job.

### **2.3.2. How to Teach**

Another essential element of competency-based education is related to managing the learning process, so that each learner has the opportunity to

develop and be evaluated on the important occupational competencies that make up the program. The competency-based approach acknowledges that people learn at different rates and in different ways. One person may learn more quickly, another more slowly, depending on the kind of task being learned.

Competency-based education makes a point of accommodating this wide variation in potential rate and style of learning by providing for the individual development and evaluation of important occupational competencies. To the maximum extent possible, students are allowed to learn at their own best rate and in their own special way.

### **2.3.3. What to Test**

A necessary part of any instructional program is testing to determine whether learning has occurred. In determining exactly what is to be tested, competency-based education emphasizes proficiency and performance above all else. Consequently, the final measure of competence is whether the student can actually perform each competency according to given criteria. Attitudes and knowledge are also tested--attitudes through observation of performance, and knowledge as an essential prerequisite upon which performance is founded.

### **2.3.4. How to Test**

Another step in the process of designing instruction is to determine how to evaluate students' learning. Competency-based education focuses on

each student's ability to perform specified occupational tasks according to established occupational standards. If learners know in advance exactly how to judge whether their performance is correct, their learning will likely be both more efficient and more effective.

This approach to evaluating learning depends on having valid, specific, high quality criteria by which to judge performance. Just as expert workers in the occupation are used to identify the important occupational competencies, current occupational practices indicate what criteria are actually used in the occupation to judge successful performance.

### **2.3.5. How to Structure Progress**

Student progress in a competency-based education program depends primarily on one thing: attainment of the important occupational competencies. In competency-based education, students move ahead to pre-identified competencies when they can successfully demonstrate prerequisite skills, and attitudes. Each competency counts.

A parallel concept is that students are considered to have completed the program only when they have mastered all the specified skills, not when the calendar or clock says they have. What is important is that students acquire the skills needed to get and hold a job in the occupation.

## **2.4. CHARACTERISTICS OF COMPETENCY BASED INSTRUCTION**

According to Foyster (1990), Delker (1990) and Norton (1987) there are a number of characteristics of competency-based programs. Key characteristics are:

- ❖ Competencies are carefully selected.
- ❖ Supporting theory is integrated with skill practice. Essential knowledge is learned to support the performance of skills.
- ❖ Detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills.
- ❖ Methods of instruction involve mastery learning, the premise that all participants can master the required knowledge or skill, provided sufficient time and appropriate training methods are used.
- ❖ Participants' knowledge and skills are assessed as they enter the program and those with satisfactory knowledge and skills may bypass training or competencies already attained.
- ❖ Learning should be self-paced.
- ❖ Flexible training approaches including large group methods, small group activities and individual study are essential components.
- ❖ A variety of support materials including print, audiovisual and simulations (models) keyed to the skills being mastered are used.
- ❖ Satisfactory completion of training is based on achievement of all specified competencies.

***In competency based instruction, teaching and learning are:***

1. Explicit and clearly aligned with expected competencies
2. Criteria-driven, focusing on accountability in reaching benchmarks and, ultimately, competence
3. Grounded in “real-life” experiences
4. Focused on fostering the learners’ ability to self-assess
5. Individualized, providing more opportunities for independent study

**1. Teaching and Learning is Explicit and Clearly Aligned with Expected Competencies**

In competency based instruction, teaching and learning are purposeful. They are made so by explicitly stated learning goals, defined in advance and linked with competencies. Faculty, therefore, must consider the competencies when planning instructional activities, and must provide clear learning objectives that link the experience with the competency. Explicit learning objectives linked to competencies and identified in advance of an instructional event provide focus and direction, and make clear the full breadth of expected performance for purposes of teaching and learning. In support of competency based instruction, research shows that students learn better when goals, instruction, and outcomes are aligned. Studies in higher education have found that providing learners with early guidance and continuing comment leads to increased learning, higher skill levels, and higher self-esteem.

**2. Teaching and Learning is Criteria driven and Focused on Accountability**

Instruction should be designed in careful alignment with the identified outcomes or competencies. Explicit rather than general instruction should predominate, helping learners to place new information into a form that is useful in practice. Although “accountability” is gauged primarily through assessment tools, instruction that provides benchmarks and promotes feedback, self assessment, and the prudent use of practice guidelines leads to an “accountability mindset” in the programme and its faculty and students.

In a competency-based educational system, learners are measured against clear criteria rather than against one another. This practice reduces subjectivity and competitive pressure. Thus it is easier for learners to work cooperatively and become resources for one another as they strive to meet standards.

### **3. Teaching and Learning Grounded in Real Life Experiences**

From the earliest conception of competency based education in the 1960’s, competencies have been framed as the active performance of real life roles consistent with effective practice. Competencies are composed of more than knowledge and skills; they are knowledge and skills and attitudes synthesized into effective performance.

### **4. Teaching and Learning Strategies are focused on Fostering the Learners’ Ability to Self Assess**

It is essential that learners become good judges of their own competence. It is generally accepted that individuals learn to judge their own performance in a number of ways, but most often by comparing their own

abilities to some external standard and then internalizing that standard. A standard may be written objectives (as in the competencies) or, more powerfully, may be the skilled performance of influential and credible role models. By developing learning and performance standards from the competencies, and by communicating those standards to learners, faculty provide a more objective basis for learner's self-assessment. When learners observe the skilled practice of experienced practitioners, they may or may not understand the thought process that guided that action. When experienced practitioners reflect on their decision making, however, learners are more likely to truly understand the actions of their teachers, to model that behaviour, and to eventually establish appropriate standards. By providing feedback to residents and encouraging them to reflect on their own professional behaviour, learners will become better judges of their own abilities.

#### **5. Teaching and Learning is More Individualised, providing Opportunities for Independent Study**

Throughout its history, competency based education has been sensitive to the differing backgrounds, learning styles, aptitudes, and abilities of learners. The learners possess different knowledge and skills. If all residents are expected to reach competency, it stands to reason that we will have to provide additional resources to those who start out at a disadvantage or who learn best through individual study and practice.

Individualized study in the form, for example, of portfolio entries, computer-based learning modules, virtual conferences provide learners with

the options for self paced study and learning. Individualized study can be offered as complementary to other group learning activities or as “stand alone” learning modules. Although computer-based learning modules provide an efficient means for transmitting certain types of information, and “virtual classrooms” do a good job of simulating interaction, nothing can replace the advice of a mentor or the real-life interaction. Electronic media should be integrated with a strong interpersonal approach to learning.

## **2.5. DEVELOPMENT OF COMPETENCY BASED INSTRUCTION**

Development of Competency Based Instruction involves the following steps.

### **❖ What skills do students need to demonstrate?**

Various forms of occupational analysis can provide this information. Advisory committees, return to industry, state and national standards, and peer groups are other sources which are helpful in making checklists of competency areas for a curriculum. Identified competencies can be verified with on the job practitioners, employers, graduates, and advisory committee members. Their responses are useful in revising program competencies as the basis for competency based curriculum development. Input from other instructors (through competency/ course correlations) helps to identify which competencies are taught in specific courses.

❖ **What must students know and be able to do to meet specific objectives?**

Overall course goals, based on identified competencies, are explicitly stated. They become the basis for specific course or module competencies and performance objectives. Instruction is designed to provide opportunities for students to learn, practice, and demonstrate their ability to perform designated tasks, under given conditions, to standards, preset by the instructor. Learning activities are designed to help students to master knowledge and perform tasks, allowing for individual differences in rates and styles. Frequent feedback to students on their progress is intended both to reinforce and enhance student learning and to suggest alternative teaching learning strategies as needed.

❖ **What prerequisite do students need to enter a given course or programme?**

As specific competencies are sequenced into instructional packages, prerequisite skills and knowledge are identified that students will need in order to experience successful learning of new competencies. Skill level may be determined through such means as tests, placement information, mastery of competencies in previous course work, or through validation of experiential learning.

**❖ To what extent can students demonstrate predetermined skills?**

Students are tested on skills and knowledge specified in the learning objectives. Performance tests may range from demonstration of skills, observation of performance, to projects, lab experiments, and oral or written reports, paper and pencil tests, as well as simulations and other computer-based formats. Individual performance is evaluated according to preset criteria whether scored as pass or fail, by letter grade, or by competency level.

**❖ To what extent is delivery of instruction effective?**

Some type of course or module evaluation is conducted to gather data on retention of students and their performance on specified competencies throughout the course. Information can be recorded for instructor use in revising instructional design and delivery - whether for the entire course, a module, specific competency, performance measures, methods of instruction, or time allowed for mastery.

**2.6. ESSENTIAL ATTRIBUTES OF COMPETENCIES**

There are some essential attributes that determine the quality of competencies. While formulating or designing competency statements for a course or programme, we have to ensure these essential attributes. The essential attributes are briefly described below.

**2.6.1. Functionality**

Attainment of competencies should enable the learners to understand their world and should prepare them to function in it as socially

useful and contributing adults. The competencies should possess the quality of functionality and it must be operative in the real world.

### **2.6.2. Achievability**

The competencies should be achievable by all learners. The competency statements must possess this attribute to serve as performance objective and to ensure learning up to mastery level by all learners.

### **2.6.3. Communicability**

It is not enough that the competency statements are functional and achievable. It is equally important to set them in a language and form that are easily understandable to all the teachers as well as the learners. In order to function as achievement targets, the competencies must be spelt out simple enough terms so as to be understandable to all those concerned with the academic growth of learners.

### **2.6.4. Evaluability**

The competency statement should be such that they serve as an effective blue print for continuous and comprehensive evaluation of learners and thereby streamline the processes involved. To provide a well defined goal of acquiring mastery level, it is necessary that the competency statements must give a clear-cut specification of expected learning outcomes, which would permit performance based evaluation.

### **2.6.5. Learning Continuum**

Learning has been seen as continuum. The competencies in one area may directly relate to competencies in other areas. If the learners progress

systematically through this continuum, mastering the concerned competencies before they move on to the next, attaining each subsequent competency will be more enjoyable and meaningful.

## **2.7. MASTERY OF COMPETENCIES**

Many psychologists believe that human beings are born with some of survival instinct for competence, a drive to master our environment and thereby thrive within it. The concept of mastery of competencies indicates that each individual is a potential learner and she can master the competency equally well provided the learning materials give ample opportunity of interactions to master the competency and the learners are given autonomy. A learner should achieve mastery at each stage of learning before going to the next stage. Here the main tasks of the teacher are (i) to decide the level of mastery and (ii) to provide guidelines for the attainment of that specific level of mastery. Students can achieve mastery when the curricular standards are clearly articulated and defined, when assessments accurately measure the student's progress toward performance of the objective and when instructional lessons are tightly aligned to the curriculum.

### **2.7.1. Steps to Mastery of Competencies**

- ✓ Determine what the student should know.
- ✓ Develop a tool or process to check their knowledge.
- ✓ Teach the Competencies.
- ✓ Use the tool to check to see if they mastered the Competencies.

- ✓ If they master the Competencies, provide activities or opportunities that stretch their thinking. If they do not master, provide other learning opportunities until they get it.

The mastery of competency has changed the basic concept of classroom teaching. The idea of accountability and competencies are the core of competency based instruction. Students' progress rate depends on demonstrated competencies. The emphasis is laid on exit and not on entrance requirements. Further the focus is being on acquisition of specific competencies by all students. Competency based instruction is therefore unique in the sense that it focuses on the students acquisition of pre-specified, agreed upon competencies and demonstration of these competencies through objective assessment. In summary, the intersection of a well-defined curriculum, appropriate and reliable assessments, and aligned instruction creates the necessary conditions for mastery of competencies – the promise of success for all learners.

### **2.7.2. Evaluation and Assessment in Competency Based Instruction**

Evaluation in traditional courses typically involves administering knowledge-based tests. While knowledge-based assessments can certainly be used in competency based instruction to measure mastery of information, the primary focus is on measuring mastery of competencies. Thomson (1991) reports that the decision to recognise a performance as satisfactory and to determine competence should be the basis for success of a competency-based programme. Moreover, Foyster (1990) argues that assessment in competency

based programmes must be criterion referenced with the criterion being the competencies upon which the programme is based. Richards (1985) indicates that simulation and work sample performance tests should include a checklist or some type of rating scale.

# REVIEW OF RELATED LITERATURE

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- 3.1. Studies on Identification of Competencies
  - 3.2. Studies on Competency Based Instruction
  - 3.3. Studies in Accountancy
  - 3.4. Studies on Effectiveness of Instructional Strategies
  - 3.5. Studies on Achievement, Attitude and Self Esteem

# **REVIEW OF RELATED LITERATURE**

The present chapter deals with the relevant review of the related literature. The review of the related literature is presented under the following heads.

- (i) Studies on Identification of Competencies
- (ii) Studies on Competency Based Instruction
- (iii) Studies in Accountancy
- (iv) Studies on Effectiveness of Instructional Strategies
- (v) Studies on Achievement, Attitude and Self Esteem

## **3.1. STUDIES ON IDENTIFICATION OF COMPETENCIES**

Perkins (1986) made the first major effort to study tasks performed in the office. He constructed a list of 599 office tasks, categorised them in to thirteen classifications and sent questionnaires to more than 300 business firms, to determine the frequency with which each of the tasks were performed. The task identified does not include standard of performance.

A major study in the office education field, 'A New Office and Business Education System' (NOBELS) 1970, involves a series of research project designed to identify tasks upon which to build a competency based education programme. The preliminary NOBELS study, Taxonomy of Office Activities, provided a framework for later research. Lehman and his

colleagues used the identified verbs in analysing almost 5000 tasks performed by office workers.

Erickson (1970) conducted an in depth analysis of 300 beginning-to-intermediate office jobs. He identified almost a thousand office tasks, classified them into ten categories, and then determined the percentage of the 300 jobs in which each task is required. A close analysis reveals that some of Erickson's 'tasks' are actually competencies because they include standard of performance.

In a study Webb (1971) found that not only intelligence level but reading level, listening ability, writing skills and quantitative ability all contributed to success in the study of high school Accounting.

The National Council of Educational Research and Training (NCERT) under the DECR project made the first effort towards enlisting of competencies. It was published with the title Minimum Learning Continuum (1979). The areas specified were environmental studies, healthy living, language, mathematics, socially useful productive work and creative expression.

Sharma (1979) on a study into the development of teacher competencies of the B.Ed. students teachers in the Training College of Rajasthan, identified the five teacher competency factor. The study also reveals that the development of competencies of the student teachers during the course of practice teaching was independent of their teaching experience, age and socio economic status.

Mathew (1980) in a study attempted to identify desirable teaching competencies of physics teachers. The different presage, process and product variables of teaching were measured and factor analysed to arrive at the set desirable teaching competencies. Also the views of the students about their physics teachers wear analysed and a profile of a competent physics teacher was developed.

Reap (1980) reviewed several task analysis and textbooks of Book Keeping and Accounting. The study reveals that out of the 150 job tasks of the real world only 36 were found in high school textbooks. Fifty two percentage of textbook volumes contained information not found in the task list.

Ahamed (1983) studied about the basic concepts and skills to be acquired in the first two years course of Book Keeping and Accounting in Indian higher secondary schools and suggested topics which should be included in the syllabus of the first two year course of Book Keeping and Accounting. The study has also suggested the concepts and skills to be included in each topic.

Natarajan (1984) conducted a study about competency-based programme in teacher education curriculum. Competencies were spelt out in behavioural terms and the same was validated by a panel of five educationists. The study proved that teacher education programme could be made more effective through a competency-based approach.

Norton, Robert E. (1989) conducted a study to identify and verify the competencies needed by vocational administrators; competency-based modularized materials were developed to address those competencies; and a variety of competency-based training program strategies were devised and implemented in several states. The initial identification of competencies was based upon input from 11 experienced vocational administrators and the results of a literature search and review. The initial task statements formulated in the process were submitted to a select national group of 130 administrators for verification. The competencies were then clustered into 30 groups for materials development purposes. A four-stage development process was used to prepare the modules: (1) preparation of a module prospectus; (2) preparation of a field-review version; (3) preparation of a field-test version; and (4) preparation of the published edition. As a result, 34 modules and 15 guides were developed. Each module covers a single broad competency or skill area needed by administrators.

Smith, Clifton L. (1990) identified the minimum core competencies for the Fundamentals of Marketing course in secondary marketing education in Missouri.

National Policy on Education (1991) has been suggested that the minimum levels of learning should be laid down for each stage of education, child-centred and activity based process of teaching learning and continuous evaluation during and at the end of instruction should be organised to ensure quality of education for all learners. It emphasised recognition of content and

process at all stages of school education to bring over all improvement in its quality.

Govinda and Varghese (1991) under took a project and enlisted the competencies under the title 'The Quality of Basic Education Services in India'. This was a case study of primary schooling in Madhya Pradesh. The listing of competencies was done under three levels – Ist, IInd and IIIrd inclusive of competencies to be developed at the end of classes II, III and IV.

Peterson, Norman K., (1992) conducted a study for the identification and verification of T&I and health occupations teacher competencies. To provide consistent preservice and inservice teacher education to T&I and Health Occupations teachers, competencies required for effective teaching must be identified and validated by practitioners. Teaching competencies deemed important by selected teachers, administrators, and teacher educators in Missouri were identified from a list compiled by the principal investigator after a literature review. These competencies were subsequently validated, and a determination was made as to whether they were basic or supplemental to vocational education certification requirements. The study ranks the competencies by instructional area and has given the competency profile for teachers with the priorities for each area.

Ruhland, Sheila K. (1993) conducted a study to identify the workplace skills and competencies essential for marketing occupations. The study examined the types of academic skills and workplace competencies that will be needed by persons employed in marketing occupations in the future. Three

rounds of a Delphi questionnaire were mailed to 23 persons who were recommended by secondary and postsecondary marketing teachers in Missouri as having expertise in marketing occupations. The following academic skills and workplace competencies were so rated listens, solves problems, sets priorities, assumes responsibility for own decisions and actions, manages time, demonstrates flexibility and adaptability, resolves problem situations, and communicates information. The participants also agreed that an additional 5 basic academic skills, 6 advanced academic skills, and 33 higher-order workplace competencies are important for employment in marketing occupations.

NCERT (1995) conducted a study on effectiveness of DPEP in improving the teacher competencies through in-service training programme. Questionnaires were issued to teachers in DPEP districts for obtaining their views and requirements regarding the competencies to be developed. Two days workshop was conducted for the identification of the required competencies and assessing the needs of teachers. Eight categories of competencies were identified in this study.

Maheswari (1998) conducted a study to identify the essential competencies, which have a practical bearing on the development of basic life skills in the child. In this study the essential learning outcomes of the primary stage of education has been identified.

NCERT (1998) in an initial discussion document entitled 'Competency Based and Commitment Oriented Teacher Education for

Quality School Education' identified the competencies required for a teacher to carryout her duties in the new education system. The identified competencies were classified in to ten inter-related categories.

Ohio State Dept. of Education (2001) in a study presents the Ohio Integrated Technical and Academic Competency (ITAC) profile for administrative office technology. It is a comprehensive listing of 58 occupational competencies, deemed essential for Ohio graduates programs in office technology. The study identified seven competency areas. Each section consists of lists of the occupational skill competencies accompanied by key indicators for assessing mastery of the specialty and foundation skills constituting each individual competency. The competencies reflect the job opportunities and skills required for employment in the field as identified through extensive research and input from industry, labour, professional organizations, and other stakeholders in the administrative office technology field. Critical academic, employability, and information technology skills have been integrated throughout the list to support the technical skills presented.

Analysis of the studies mentioned above shows that there is limited number of studies on identification of competencies. The investigator could not find any studies related to the identification competencies to be developed in accountancy at higher secondary level.

### **3.2. STUDIES ON COMPETENCY BASED INSTRUCTION**

This section discusses the studies related to competency based instruction.

Allen, Kenneth R & Caron, Susan (1980) developed through synthesis and review of existing task analysis literature, list of tasks expected to be performed by workers in four business and office occupations and presents information for incorporating these tasks into secondary and postsecondary competency based educational programs. Task listings are presented for the following occupations: accounting, clerical occupations, data processing, and secretarial occupations. Tasks are listed by suggested instructional sequence with various program exit points noted by job title.

Harris, C. (1980) in his study 'Competency-Based Education--What it Spells for Teachers and Students' explains competency-based education and its positive and negative aspects. Typical components of competency-based instructional models are listed as performance objectives, prerequisite experiences or skills, pre-assessment, instructional-learning activities, post-assessment and new performance objectives or termination. Two occupational competency tests were developed, reviewed, field tested, and validated to ensure their effectiveness by Zwillinger, Steven W. (1980). Many features of competency-based testing procedures offer advantages over other methods. These advantages include being free from sex bias and race bias.

Chalupsky, Albert. B. (1982) developed; field tested and validated a series of occupational competency tests representing the seven vocational education curriculum areas. Identification of competencies involved

development of a task inventory and task verification through interviews in the field. Contents of the final test packages were a job information (paper-and-pencil) test, a complete set of hands-on performance tests, a Work Habits Inventory (a teaching and counselling tool in job survival skills), and an Examiner's Manual.

Schmidt, B. June (1983) developed competency-based instructional resources guides for the secondary business educational offerings of legal office procedures, medical office procedures, record keeping and office supervision and management.

Sloan, Kelly and Hilley, Robert (1984) designed a competency-based curriculum guide for instructing students in using computer numerically controlled (CNC) turning machines. This curriculum guide contains six instructional units. Each unit is based on a standard format that includes eight basic components: performance objectives, instructional overviews for the instructor, information sheets, assignment sheets, job sheets, instructor supplements, tests, and answers to tests and assignment sheets. Depending on the specific objectives, there may or may not be instructor supplements, assignment sheets, and job sheets included in the unit of instruction. All of the unit components focus on measurable and observable learning outcomes.

Blank, William E. (1987) in a study suggests a statewide system for Competency-Based Instruction. Norton (1987) in a study has described five essential elements of a competency-based system of education. Norton, Robert E. (1989) conducted a research to identify and verify the competencies

needed by vocational administrators. Foyster (1990), and Delker (1990) have identified the key characteristics competency-based programs.

Preston, Janet E & Kunz, Margie H (1990) conducted a comparison of competency-based instruction with conventional instruction in the home economics classroom. In Method 1, teachers were provided with lists of competencies and workshop training for using the competencies. In Method 2, teachers were provided with lists of competencies and no workshop training; and in Method 3, teachers had neither lists of competencies nor workshop training. The study found that (1) there was no significant difference in student learning between the three groups tested when each method was compared independently; (2) a significant difference was found when Method 1 and Method 2 were grouped together and compared with Method 3; and (3) teacher variables analyzed did not show a significant impact on student scores.

Rowley, Thomas H.; Layne, B. H. (1990) studied CBI in accounting education. Two experiments were conducted to evaluate the effectiveness of a computer-based instruction (CBI) tutorial in accounting education as compared to traditional classroom lectures. In the first experiment (involving over 200 students), two instructors taught one class section each using the lecture method and one class section each using the tutorial. Learning was measured in all four sections by the difference in posttest and pretest scores. In the second experiment, a large class of 100 students was divided randomly into 2 groups with one-half receiving the usual class lecture and the other half

using the tutorial program via computer network. Results indicate that under-prepared students using the tutorial showed a greater increase in their amount of learning than those in the control group. However, students with average or above average entry level knowledge in the CAI tutorial group did not show statistically different results from students with average or above average entry level knowledge in the traditional groups. It is concluded that the challenges facing accounting education can be addressed effectively with microcomputer-based CBI applications.

Smith, Clifton L (1990) in his study revised the minimum core competencies for the Fundamentals of Marketing course in secondary marketing education in Missouri.

Watson, Anthony (1990) in a study highlights the main features and advantages of competency-based vocational education (CBVE) through an examination of three competency-based programs in operation.

Aitken, Joan E and Neer, Michael R (1991) in their study provides an example procedure used to design and install a program of assessment to improve communication instruction through a competency-based core curriculum at a mid-sized, urban university.

Gibbons, Michael (1991) analysed three competency based instruction programmes. All the programmes shows better results compared to the existing system in respect of student mastery.

Lovelace, Bill E and LaBrecque, Suzanne V (1993) conducted an assessment of Competency-Based Instruction to know extent to which

competency-based instruction (CBI) has been implemented in postsecondary-level vocational-technical education programmes and courses throughout Texas. Although more than 90% of the responding institutions were using competencies from the workplace when developing their curricula, less than 40% were using occupational competency examinations to determine students' achievement of the competencies.

A major problem in competency-based education is the lack of clarity in defining competence. In a study McCowan, Richard J, (1998), describes the levels of competence used in developing competency-based educational programs and provides a taxonomy that can be used in developing competency-based instruction. The taxonomy includes four levels. Level 1 includes specific attitudes, knowledge, and skills. Level 2 includes competences which are clusters of skills, attitudes, and knowledge. Level 3 includes domains which are clusters of related competences. Level 4 includes clusters of domains which form a job.

Ben-Yoseph, Miriam; Ryan, Patrick; Benjamin, Ellen, (1999) studied the retention of adult students in a competence-based individualized degree program. The study used enrolment data 1986-96, course progression data 1990-95, and surveys of 140 enrolled and 250 not enrolled students. The study found that three-fourths of those who graduated 1988-94 did so within three years; retention was most difficult in the self-directed and research phases.

Lowrie, Tom; Hill, Doug; Smith, Erica, (1999) studied the impact of competency-based training (CBT) on the role and responsibilities of instructors across Australia's vocational education and training (VET) sector. CBT appeared to be well understood by instructors across the VET sector, and in most cases, acceptance of CBT was moderately high. Practitioners were more satisfied with their level of understanding of CBT than with aspects of their practice in CBT such as assessment on demand and prior learning. Staff development needs relating to CBT were not consistent across provider type or industry area. Staff development that met instructors' immediate needs and concerns was considered valuable in the early stages of implementation of CBT.

Tillema, H. H.; Kessels, J. W. M. & Meijers, F,(2000) developed a framework showing how to organize curriculum and instruction around competencies in vocational education, introducing the Educational Development and Assessment system used in the Netherlands to highlight procedures used and experiences found in integrating assessment and instruction in a vocational education institution.

Jiang, Mingming; Shrader, Vincent, (2001) investigated factors that might be related to successful academic progress and students' satisfaction with a competency-based graduate program in an online environment. Results of the e-mail survey indicate that the students' overall satisfaction is high. Students were most satisfied with the flexibility of time and place provided by an online degree program and the academic services provided by the

mentor. The area in which students felt the need for examination and improvement was demonstrating competencies through domain assessments. Among the variables selected for the study, only "contacts with a mentor" had a significant relationship with students' satisfaction. "Student-mentor interaction" was a strong predictor for students' academic progress. Courses and hours for studies were significantly correlated with academic progress but not powerful enough to predict the variance of the academic progress. Pre-assessment did not have any significant correlation with academic progress.

Lindner, James R. (2001), conducted a descriptive and correlational study to examine perceptions of Ohio State University Extension county chairs regarding their human resource management competencies and performance of human resource management activities. The study also sought to describe the relationship between human resource management competencies and performance of human resource management activities of county chairs. The highest human resource management competencies perceived by county chairs were written comprehension, oral comprehension, written expression, information gathering, inductive reasoning, and problem sensitivity. The human resource management activities for which county chairs indicated the highest means were developing and maintaining positive work environment, administering wages and benefits, ensuring safety and health at worksites, and selecting and hiring employees. The correlation between the summated competency and activity score was significant with a very strong relationship between the variables.

Ohio State Dept. of Education (2001) listed of 58 occupational competencies, deemed essential for Ohio graduates programs in office technology.

Lynch, David H.; Murranka, Patricia (2002) in an evaluation study conducted among faculty members of Association for Business Communication find that only 11% used competency-based instruction to teach business/management communication. As revealed by the study the barriers to use included satisfaction with traditional instruction, lack of knowledge, lack of incentives and resources, difficulty scheduling facilities, and student inability to handle the freedom involved.

Wilkinson, Joanne (2002) describes a cost-effective process for delivering large-scale life support training in a medical centre, a situation with high risk and low tolerance for incompetence and discusses the reengineered credentialing system that delivers competency-based instruction via multimedia.

Gangani, Noordeen T.; McLean, Gary N & Braden, Richard A (2004) in their study explores issues in developing and implementing a competency-based human resource development strategy.

McEvoy, Glenn M. *at el* (2005) in a study describes a framework for the design and implementation of a competency-based curriculum for graduate management education. It also outlines how this model has been implemented at one university in the context of a graduate degree in human resource management.

Baartman, Liesbeth K. J., Bastiaens, *at el.*, (2006) in a study presents a framework of 10 quality criteria for CAPS. An expert focus group was used to validate this framework. The results confirm the framework (9 out of 10 criteria) and expand it with 3 additional criteria.

Chang, Chi-Cheng, (2006) conducted a study to develop competency-based web learning material and to evaluate the effect of self-directed learning aptitudes on learning achievements. After using the competency-based web learning material (CBWLM) for 8 weeks, this study investigates CBWL's learning effects and self-directed learning aptitudes (SDLAs) as well as exploring the influence of SDLA on learning effects based on the sample of 38 students. The results of this study indicate that over half of the students achieve the mastery level after using CBWLM. SDLAs of the mid-CBWL and post-CBWL do not influence learning effects.

Chyung, Seung Youn; Stepich, Donald & Cox, David, (2006) in a study titled 'Building a Competency-Based Curriculum Architecture to Educate 21st-Century Business Practitioners' provide theoretical and practical information about underlying characteristics of competencies and explain how the Department of Instructional & Performance Technology at Boise State University developed a set of competencies and has been modifying its curriculum on the basis of these competencies. Detailed steps taken in developing a competency-based course has been described in this study.

Baartman, Liesbeth K. J.; Bastiaens, Theo J, *at el*, (2007), in their study argues for Competence Assessment Programmes (CAPs),

consisting of a combination of different assessment methods, including both traditional and new forms of assessment. A framework of 10 quality criteria for CAPs is presented, which is then compared to Messick's framework of construct validity. Results show that the 10-criterion framework partly overlaps with Messick's, but adds some important new criteria, which get a more prominent place in quality control issues in competence-based education.

Bipoupout, J. C. (2007) studied the contribution of the competency-based approach to education for all (EFA) in Cameroon. The introduction of this approach in an led to remarkable results improvement in classroom practice with teaching learning experiences and significant positive contribution towards the achievement of EFA in general and a more effective and equitable school in particular.

Chang, Chi-Cheng, (2007) evaluated the impact of the competency-based web learning material (CBWLM) on the self-directed learning aptitude (SDLA) of college students. Specifically, it seeks to investigate, statistically, the changes in SDLAs at different stages of competency-based web learning (CBWL) over an eight-week period. The result of the study reveals that no significant changes in SDLA test scores (before, during and after working in the CBWLM) are found. Specifically, it implies the CBWLM does not have significant influence on the students' overall SDLA, but slightly enhances their "Fondness for Learning" factor in SDLA. Recommendations proposed

by the study are to develop more superior CBWL materials and extending the duration of CBWL.

Moon, Yong-lin (2007) describes a new educational paradigm as well as possible directions and tasks for education reform in the 21st century. The system provides for (i) to reduce the relative weight of subject-centered education and introduce a competency-based curriculum in order to teach key competences for life;(ii) new intelligence theories must be introduced into education in order to foster the development of students' talents, aptitudes, and potentials, and (iii) provide for the use of positive psychology, which is a newly emerging field, the core concept of which is the belief that happiness in life depends on one's ability to develop and maintain positive feelings and emotions.

The above reviews give an overview of the studies done in the area of competency based instruction. From the review we can see that there is no much studies on competency based instruction in accountancy.

### **3.3. STUDIES IN ACCOUNTANCY**

This section attempts to trace the studies done in the field of accountancy. Even though the investigator searched the literature only few studies were found in this area.

Rowley, Thomas H.; Layne, B. H. (1990) conducted experiments to evaluate the effectiveness of a computer-based instruction (CBI) tutorial in accounting education as compared to traditional classroom lectures. In the first experiment, two instructors taught one class section each using the

lecture method and one class section each using the tutorial. Learning was measured in all four sections by the difference in posttest and pretest scores. In the second experiment, a large class of 100 students was divided randomly into 2 groups with one-half receiving the usual class lecture and the other half using the tutorial program via computer network. Results indicate that under-prepared students using the tutorial showed a greater increase in their amount of learning than those in the control group. However, students with average or above average entry level knowledge in the CAI tutorial group did not show statistically different results from students with average or above average entry level knowledge in the traditional groups. It is concluded that the challenges facing accounting education can be addressed effectively with microcomputer-based CBI applications.

Kwong, K. S.; Lui, Gladie (1991), studied the effects of accountancy internship on subsequent academic performance. The grade point averages and degree examination results of 10 Chinese University of Hong Kong students who had been interns were compared to scores of 236 accounting majors who had not. The study concludes that internships increased student knowledge and motivation.

Park, L. Jane, (1994) studied sex difference in accounting. Data from 131 male and 177 female accounting students were derived from test scores, student estimation of performance, California Psychological Inventory, and State-Trait Anxiety Inventory. No significant differences between the sexes appeared in test performance or grade point average. Psychological tests

showed male self-perceptions to be confident, assertive, and self-sufficient, whereas females were sensitive to criticism and inwardly oriented

Fisher, Roy; Murphy, Vivienne, (1995) in a study titled, “A Pariah Profession? Some Student Perceptions of Accounting and Accountancy” surveyed 106 undergraduate accounting students in the United Kingdom were analyzed for perceptions of the accounting profession and the academic discipline of accounting. Results suggest that among accounting and non-accounting students alike, there exist coexisting perceptions of accounting as having high status and low esteem. Contributing factors are also discussed in this study.

Abekah, Joseph (1996) studied students’ perceptions towards accounting as the effects of the first university accounting course. Responses from 293 students at the beginning and 177 at the end of an introductory accounting course showed they found accounting less useful and less exciting than expected, although most found it less difficult than expected. Better job prospects, instructor, and utility influenced positive attitude change; instructor and degree of difficulty influenced negative attitude change.

McCleary, Bill (1997) Changes in Accounting Education Include Increased Use of Writing Tasks.

Joyce, William B (1999) studied cooperative learning in accounting classes. Accounting student teams worked cooperatively on homework, problem solving, and test preparation. Group study helped retention,

especially when interdependence was rewarded. It is found that although they enjoyed cooperative learning, most students preferred individual study.

Leveson, Lynne, (1999) studied a program of small collaborative working groups that was offered students in a first-year accounting degree course and evaluated the program's effectiveness in helping students with their studies.

Bittner, Joseph, (2000) reported that Business educators should integrate real-world situations into classroom activities so students can better realize how accounting procedures are used and their importance

Gagne, Margaret; Shepherd, Morgan, (2001) compares a graduate accounting course offered via distance learning with a Web-based interface, with a traditional, campus-based class.

Basile, Anthony; D'Aquila, Jill M. (2002), conducted an experimental analysis of computer-mediated instruction and student attitudes in a principles of financial accounting course. Accounting students received either traditional instruction or used computer-mediated communication and WebCT course management software, there were no significant differences in attitudes about the course. However, computer users were found more positive about course delivery and course management tools.

Miglietti, Cynthia, (2002) studied the factors that facilitate the effective use of cooperative small groups in introductory accounting classes. These factors include attention to group formation, orientation that sets clear expectations and guidelines, activities to develop teamwork skills, peer

evaluation, and other assessments that recognize and measure individual effort on group projects, the study confirm.

Yakhou, Mehenna; Dorweiler, Vernon P. (2002) in a survey of accounting department chairs, only 11% thought that environmental issues should be a standalone course; only four schools had such a course. Environmental topics rated highest were managerial and cost accounting and external reporting and auditing. Respondents believed that integrating topics into courses broadened the scope and impact of accounting education.

Doran, Martha S. (2003) conducted study to investigate the effects of peer collaboration and individual study as modes of practice, using the lesson content of a required introductory accounting course. The study also examined the effects of using content organizers on the practice worksheets. Students showed a significantly higher level of achievement using the practice mode of peer collaboration, as well as having significantly more positive attitudes towards this method of classroom practice in problem solving. Several factors may have contributed to the positive results for peer collaboration. These include providing and explaining the answer, obtaining feedback and discussion, and playing an active role in learning.

Simington, Lorrie R. (2003) investigates whether teacher home visits improved students' attitudes and increased achievement test scores. The result shows positive change among the learners.

Broad, Martin; Matthews, Martin; McDonald, Andrew, (2004) studied the effectiveness of Web-based learning and teaching on a second year unit of

a BA (Hons) Accounting degree, and appraises whether it could provide the appropriate medium to create an efficient and robust learning environment for accounting students. Changes in the learning styles (Honey and Mumford, 1992) of students were evaluated and it is suggested that an integrated virtual learning environment could engender a move to more autonomous learning by students.

Vamosi, Alexander R.; Pierce, Barbara G.; Slotkin, Michael H, (2004) studied student satisfaction and perceptions of efficacy. The investigators employed a novel, dual approach toward the delivery of course material to assess students' satisfaction with distance learning and their perceptions of its efficacy. Students in two sections of an Introduction to Financial Accounting course received instruction that alternated between traditional, live lectures and live lectures captured for viewing over the Internet. Thus, the course moved from synchronous to asynchronous modes of learning, and vice versa. Results show that the students reported a lower relative level of satisfaction with the distance-learning component, as well as diminished effectiveness in mastering the distance-learning course material.

Ahadiat, Nasrollah, (2005) conducted a study to determine what factors influence faculty's decisions to use technology in their classes, what factors prevent them from use, and whether there are differences among faculty by gender, ethnicity, rank, sub-areas, etc. in using instructional technology. A survey instrument was used to measure attitudes toward technology among accounting educators. The results demonstrate that while

accounting faculty value technology greatly and do use it in teaching; significant differences exist in their views toward it. Several factors were found to influence faculty's attitudes toward integration of technology.

Alfan, Ervina; Othman, Md Nor, (2005) conducted a study to determine the undergraduate students' performance in the faculty of Business and Accountancy, University of Malaya and the factors influencing the performance of the undergraduate students. The performance of the undergraduate students in this study is measured by their cumulative grade point average (CGPA) in the final semester. In this study, the students' demographic profile, entry qualifications and the subjects taken by the students in pre-university level are used as the predictor variable for the students' performance in the degree programme. The result of the study shows that the predictor variables do explain the variance in the students' final CGPA. In addition, it was found that knowledge prior to entering the university such as economics, mathematics and accounting is crucial in assisting the students in undertaking the courses in both business and accounting programme. The study also found that female students perform better than male students; whilst Chinese students perform better than Malay and Indian students.

Byrne, Marann; Flood, Barbara, (2005) studied the accounting students' motives, expectations and preparedness for higher education. The study examines the perceptions of first-year students as they commence their study of accounting at an Irish university. It explores a range of factors which

impact on students' learning: their motives for entering higher education, their rationale for selecting an accounting programme, their preparedness for further study and their expectations.

Elias, Rafik Z. (2005) examined the way in which students approach studying introductory accounting courses. Two study approaches have been clearly identified: deep and surface. It is found that GPA and expected course grade were correlated positively with using the deep approach to studying. Compared with other business majors, accounting and non-business majors used more deep and fewer surface approaches to studying. In addition, women and students who were more mature and senior employed the deep approach more often than did other students.

Flynn, Antoinette; Concannon, Fiona; Bheachain, Caoilfhionn Ni (2005) explored students' perceptions of e-learning in a large undergraduate accounting class environment. E-learning technologies are increasingly widespread; however, they are often employed for technology's sake rather than directed by a pedagogic rationale. This study explores e-learning technology from the student's perspective, using surveys, focus groups, and in-depth interviews. From an exploration of emergent themes, a deeper understanding of the learner's experiences online surfaces. These factors are reported as significant to the success of online course components (for large-group learning) and are contextualised within the specific pedagogic model employed.

Huang, Jiunn; O'Shaughnessy, John and Wagner, Robin, (2005) analyzed the effectiveness of the screening/remedial system and concurrent effects on performance. They found that students who passed the pretest or accounting cycle class received significantly better grades in intermediate accounting than did students who failed either the pretest or the 1-unit course and than students who did not take either the pretest or the 1-unit class. This finding implies that this form of pretest/remedial course screen would be effective in similar universities in which a large percentage of accounting majors have taken introductory financial accounting at a community college.

Tickell, Geoffrey; Smyrniotis, Kosmas X., (2005) evaluated the effects of a range of demographic, behavioural and educational variables on the Year 1, Year 2, and Year 3 academic performance of Year 12-to-university, and TAFE-to-university accounting students at one Australian university. Findings reveal that the best predictor of academic performance in any one year is the performance in the same discipline in the previous year. Notably, successful Year 12 Accounting completion had an enduring positive effect for all university accounting grades. Type of secondary school attended, previous year's academic grades, and level of interest in accounting as a discipline and profession also proved to be significant influences on academic performance.

Hansen, James D., (2006) describes the process of writing a problem-based learning (PBL) problem and shows how a typical end-of-chapter accounting problem can be converted to a PBL problem. PBL uses complex, real-world problems to motivate students to identify and research the concepts

and principles they need to know to solve these problems. Students work in teams to acquire, communicate, and integrate information. The goals of PBL are to help students (a) think critically, analyze, and solve complex real-world problems; (b) find, evaluate, and use learning resources; (c) work cooperatively in teams; (d) demonstrate effective communication skills; and (e) use content knowledge and intellectual skills to become continual learners.

Ballantine, Joan; Larres, Patricia McCourt (2007) in their study, examined final-year undergraduate accounting students' opinions on the effectiveness of a cooperative learning environment in delivering generic skills for their future professional accountancy careers. In particular, the study examines relative perceptions of effectiveness between students of differing academic abilities. The study concludes that the students found the cooperative learning approach beneficial in developing their generic skills. Further, no significant differences were found between the perceptions of the less and more able students. The study addresses perceptions of the benefits derived from cooperative learning rather than measuring benefits using an objective measure of achievement. The findings provide some level of assurance for educators in accounting and other vocational disciplines that students of different academic abilities believe they have enhanced their generic skills as a result of engaging in cooperative learning.

Cheng, Kai-Wen, (2007) studied the curriculum design in universities from the perspective of providers in accounting education. This research presented questionnaires to the providers of accounting education, to explore

the future directions of "curricula design" in accounting education at the university level to acquire suggestions on how to decrease the expectation gap between business and the academic practitioners in this field. The research results show that there are five directions that universities can take as follows to upgrade accounting education: (1) Basic accounting, intermediate accounting, advanced accounting, cost accounting, management accounting, and auditing should be integrated; (2) Some courses, like business english, english conversation, communication skills and abilities, e-commerce, strategic cost management, and enterprise resource planning, should be supplemented; (3) Students should be divided into employment and advanced study groups according to their interests; (4) Case study approach should be more emphasized and promoted in universities; and (5) A more flexible school-year system should be proposed.

Danziger, Nira; Eden, Yoram, (2007) studied the gender-related differences in the occupational aspirations and career-style preferences of accounting students. The hypotheses stipulated an interaction between gender and year of study on students' career aspirations and on career-style preferences. The hypotheses were tested by cross-sectional analysis of the data, using 802 valid questionnaires collected from a sample of 1,000 Israeli accounting students from the accounting programs at three institutions of higher learning. It was expected that an interaction between gender and year of study would affect students' occupational aspirations and career-style preferences. However, during their later academic years, females reduced their occupational aspirations and revealed a stronger preference for a

convenient balance between work and other facets of life. Logistic regressions demonstrated the statistically significant effect of the interaction between gender and academic year on student occupational aspirations and career-style preferences.

Paisey, Catriona; Paisey, Nicholas J. (2007) in a study concludes that the introduction of core curricula in undergraduate accounting education could address the problem of the increasing knowledge base while providing breadth, opportunities for developing interpersonal skills and allowing students to tailor their degrees. In this way, the vocational and academic aspects of undergraduate accounting education could be balanced more effectively.

Sadler, Philip M.; Tai, Robert H. (2007) conducted a study to investigate the feasibility of accounting for student performance in advanced high school coursework through the adjustment of high school grade point average (HSGPA) while separating out variables that are independently considered in the admission process, e.g., SAT/ACT scores, community affluence, type of high school, and race/ethnicity. This study relates three variables: high school science grade, high school course level (i.e., regular, honors, Advanced Placement (AP), and AP examination score. These three are compared, using as a common metric how well students perform in their introductory college biology, chemistry, or physics coursework. Two variables were found to correspond to substantially better performance in college science courses: increasing rigor of high school science experience

and higher grades in high school science courses. These two variables can be related to each other using relative improvement in college grade as a common metric.

Review of studies in the field of accountancy shows the scarcity of empirical research in this area. Only a limited number of studies have been found. It is significant to note that research studies related to accountancy were found only after 1990s. There is no even a single study on the effectiveness of competency based instruction in accountancy at higher secondary level in the Indian context. This substantiates the significance of the present study.

#### **3.4. STUDIES ON EFFECTIVENESS OF INSTRUCTIONAL STRATEGIES**

This section discusses different studies conducted to verify the effectiveness of a variety of instructional strategies.

The result of the study conducted by Purohit and Jain (1980) revealed that the two methods viz. programmed learning and expository teaching are equally effective for instruction in modern mathematics.

Sahajahan (1980) conducted an experimental study of teaching science in standard VI and VII through modules and found it is more effective than conventional method.

The major finding of the study conducted by Justus (1981) was that the supervised study module is more effective than the traditional approach in

teaching biology in high school under the categories of knowledge, comprehension, application and skill.

While Varghes (1981) experienced the higher effectiveness of teacher-assisted programmed approach over the conventional approach in teaching biology in kerala High School.

Hooda, R.C. (1982) found that the mastery learning strategy is effective in terms of pupils achievement in mathematics compared to conventional method of teaching.

Hopper. W.A.F., (1982) conducted an experimental study in the use of modular approach for teaching biology in standard XI and found it is effective in terms of mean gain in cognitive achievement.

Analysis of the data obtained from the study carried out by Shine (1982) concluded that programmed instruction is as effective as the lecture-demonstration method for teaching digital computer arithmetic.

Ravindranadh (1982) observed the inductive and deductive programmed learning methods equally effective and more than conventional method in teaching biology in secondary schools in Beroda.

Singh, O (1983) compared the effect of programmed instruction, Bloom's mastery learning and conventional method of teaching on self-concept, achievement motivation and test anxiety of students. The study found that the selected instructional strategies did not significantly affect the

self-concept of students, but Bloom's mastery learning strategy cause increase in achievement motivation of students.

Bhattacharya, G.C. (1984) conducted a study to compare the Concept Attainment Model and Inductive Model of teaching. The study was conducted with parallel group design and found that students taught through CAM have better achievement in Geography.

Chand, R (1984) studied the effect of Personalised System of Instruction and Bloom's Mastery Learning Strategy on the retention of high school students in a segment of science. The study was conducted on a sample of 160 students divided in to three equivalent groups. The study showed that the immediate retention is same for the groups taught with the PSI and Mastery Learning Strategy.

Yadev, P.S. (1984) in a study found that mastery learning strategy produced a significantly higher achievement in mathematics, self-concept and attitude toward mathematics.

Bhalwanker, A.G (1985) studied the differential effect of guided discovery and expository methods of teaching mathematics on the on the achievement of students and found that both the methods were equally effective.

Chitkara, M. (1985) studied the effect of different strategies of teaching on Achievement in mathematics in relation to intelligence, sex and personality. Four way factorial design was employed in the study. The study compared three instructional strategies viz., a) lecture-discussion, b)

inductive-drill and c) auto-instruction group discussion. All the three strategies were found to be equally effective in terms of pupils achievement in mathematics.

Giridhari Lal (1986) compared the effect of Individualised Instruction Conventional Instruction on students' achievement, personality type and levels of thinking. The study adopted pre-test post-test experimental-control group design and found that Individualised Instruction is more effective.

Rao, A.V. Raghavendra (1986) studied the relative effectiveness of guided discovery and expository approaches of teaching mathematical concepts and problem solving. It was found that there is no significant difference in achievement in mathematics and problem solving ability of the two groups taught with these two methods.

Khalwania, N.S. (1986) developed a concept based science curriculum and compared the same with conventional curriculum in terms of development of cognitive structure and acquisition of process skills. The study found that the concept based science curriculum is more effective.

Wolery, Mark (1986) investigated the issues related to instructional procedures used with students having moderate and severe mental retardation and developed and field tested four modules/manuals. The instructional strategies covered are: error correction, antecedent prompt and test, antecedent prompt and fade, most to least prompting, system of least prompts, constant time delay, progressive time delay, naturalistic teaching strategies, and stimulus manipulation.

Patadia. H.J. (1987) developed a strategy for mastery learning in geometry for the pupils of Vth grade and validated its effectiveness. Study revealed that the strategy developed worked well as 88.24% pupils of the experimental group scored minimum of 70% marks. The achievement of the experimental group found to be significantly higher than that of control group.

Agarwal, R. and Misra, K.S. (1988) investigated the effectiveness of the Modified Reception Concept Attainment Model of Teaching (MRCAMOT) for enhancing the attainment of science concepts. The study adopted randomised control group pre-test and post-test design and proved that MRCAMOT is effective in increasing the knowledge and understanding of science concepts and helped in students' concept attainment.

Kasha, N.K. (1988) studied the long term effect of advance organisers upon achievement in biology in relation to reading ability, intelligence and scientific attitude and found that the advance organisers facilitated immediate and delayed learning.

Mathur, R.G. (1988) conducted the effect of mastery level learning programme in statistics on the achievement, self-concept and attitude towards statistics of nursing students.

Siddique's (1988) study indicated that the mean levels of students' achievement in biology for programmed instructional unit and self-learning modules were statistically higher than traditional method group students.

Dwivedi (1989) concluded from a study that even though the level of aspiration does not affect the performance on the linear programmed learning

materials in biology, the socio-economic status definitely affects the performance of students.

Rosner (1989) evaluated a computer assisted unit in basic electrical awareness which included two computer simulations and regular classroom instruction for grade 6 to 9 and found that content learning improved with grade level. This shows the acceptance of CAI for higher grades.

Boone, Harry N., Jr.; Newcomb, L. H. (1990) studied the effects of approach to teaching on student achievement, retention and attitude. Nachimuthu (1990) developed and validated a computer programmed learning material for standard IX to attain mastery level achievement on 'leaves' and revealed an overall performance improvement in teaching through computer assisted instruction (CAI).

Goel and Mahajan (1990) in their study on computer-based question bank at B.Ed. level observed that science group scored significantly higher than the arts.

Posttest results of the study carried out by Sansanwal and Joshi(1990) showed that the specially designed instructional strategy comprising programmed learning materials, experimentation, assignment, discussion, etc., was superior to the traditional approach in terms of the development of application, analysis, synthesis, evaluation and overall higher mental ability in science.

Spiegel, Dixie Lee (1990) in a study compared the effects of four study strategies on at-risk sixth-grade students' comprehension and retention

of main ideas and details in considerate and less considerate social studies text. Results revealed no significant difference in the performance of students who received explicit instruction in strategy use and students who did not. Results also revealed that the majority of students who received training in mapping did make some attempt to use mapping as a study strategy, but did not use the mapping strategy in its entirety.

Singh, Daljeet. K (1990) studied the effectiveness of Inquiry Training Model and Concept Attainment Model over Traditional Teaching Methods for teaching physical science. The study found that both the ITM and CAM were effective in teaching physical science.

Vaidya, S (1990) studied the effect of Mastery Learning Strategy on pupils' achievement, their self-concept and attitude towards Hindi and found that the Mastery Learning Strategy was more effective in facilitating learning and raising the achievement of the learners than the CAM and the traditional methods.

The studies by Madhumohan (1990), Santhoshkumar(1990), Gopalan(1992) and Jissy (1997) confirm the superiority of the teacher assisted study module over the traditional textbook approach in teaching high school chemistry, school physic, degree level botany and 'identities' for high school students respectively. While Madhumohan found the module more effective under the categories of objectives application and skill, and equally effective in the case of knowledge, comprehension and all intelligence levels, Santhosh kumar reported its effectiveness under all the four categories of objectives and

intelligence levels. Jissy observed the higher effectiveness of modular approach in subsamples belonging to urban and rural areas.

Gangopadhyaya, Tapan Kanti (1991) studied the relative effectiveness of teachers' classroom teaching techniques in relation to students' achievement. The study made a comparison of four instructional strategies and found that lecturing and explanation with question - answering by using feedback sequence is more effective.

Gupta, Suman (1991) conducted an experimental study to find out the effectiveness of Advance Organiser Model of Ausubel in developing the teaching competence of student- teachers. The sample consists of 100 B.Ed. students. The findings of the study showed that AOM of Ausubel is effective in developing the teaching competence of student teachers. The study also proved that the method is effective in developing the attitude of student teachers towards teaching.

Jaimini, Nirupama (1991) studied the relative effectiveness of teaching through Advance Organiser Model, Concept Attainment Model and Conventional Method on conceptual learning efficiency, retention of concepts. The study reveals that AOM and CAM were more effective than Conventional Method and both are equally effective in concept learning. But AOM was more effective than CAM in the retention of concepts by pupils.

Kauri, rejoinder Pal (1991) compared the effectiveness of Bruner and Amusable models of teaching concepts of economics to students having different levels of achievement and creativity.

Pandey, Satya Prakash (1991) studied the instructional and nurturant effect of the Jurisprudential Inquiry Model of teaching and found that the model was effective for the development of social values and jurisprudential inquiry ability.

Rao and Deo (1991) found that Computer-Assisted Learning Package (CALP) lessons in selected areas of nursing practice were adequate as well as interesting and could capture the attention of students. Moreover they agreed that, the CAI method of teaching was as good as any other known method, rather it is better.

Sharma, R.C. (1991) studied the effect of four classroom presentation modes on the achievement of secondary students in science. The study was conducted on a sample of 160 students studying in class X who were selected at random. The study found that video-instruction, followed by teachers' discussion mode was superior to other modes.

Viney (1992) studied the effectiveness of different models of teaching on achievement in mathematical concepts and attitude in relation to intelligence and cognitive style. The study found that the Computer Model of Teaching was effective for teaching concepts in mathematics and for inculcating positive attitude.

Orr, Kay L.; Davidson, Gayle V (1993) studied the effects of group computer-based instruction and learning style on achievement and attitude for 190 elementary school students in grades 4 and 5 in Austin (Texas). Results do not support the hypothesis of interaction between instructional delivery

and learning style for both performance and attitude. Recommendations for further research are made, and some suggestions for applications of computer-based instruction are offered.

Scarafiotti, Jamie C and Others (1994) studied the effects of cooperative learning strategies on performance, attitude, and group behaviours in a technical team environment. Results indicated that the practice conducted in a cooperative manner had a significant effect on performance and group behaviours.

Singh, S.N (1994) conducted a study to compare the effectiveness of Inductive Thinking Model with Traditional method of teaching economics to class XI students in terms of selected variables. The study found that the ITM was more effective compared to traditional method in terms of achievement in Economics.

Cavalier, Jamie C. (1995) investigated the effects of cooperative learning strategies on 274 engineering employees in a training class on communicating technical procedures in plant operations. Results indicated that the cooperative learning had a positive effect on performance and group behaviors.

Marret (1995) came to the conclusion from her study on the effectiveness of a supervised study module for learning the occupational aspects of coconut cultivation along with certain aspects in degree level botany, that supported study module is effective in giving students knowledge in an integrated fashion compared to the traditional teaching method.

Doran, Martha S.; Klein, James D. (1996) conducted a study on the effects of learning structures on student achievement and attitude using a computer simulation.

Jones, Elizabeth E. K. (1996) studied the effects of matching learner preference for instructional method on achievement and attitude. Results indicate that a preference for group work did not predict better performance under group work.

Edmundson (1996) showed that Computer-Assisted Instruction (CAI) students performed significantly better than the conventional instruction control group in their reading achievement in the Stanford's Computer-Assisted Instruction Program and intermediate English respectively. Atkinson also founded the CAI responded to individual difference from the standpoint of both total numbers of problems completed and the rate of progress during the year.

Kuriakose (1996) found that programmed instruction is an effective teaching methodology in chemistry to develop thinking and reasoning capacity in higher secondary students than the conventional method.

Ikegulu, Nelson. T (1997) studied the effectiveness of mediated instructional strategies in culturally and linguistically diverse learning environments, focusing on the use of computer-mediated instruction and its relationship to various learning styles. It examines learning style dimensions and reviews related literature on the relationship between computer-mediated

instruction and cognitive style dimensions and academic outcomes for students.

Rogers, William D.; Ford, Robert (1997) studied the factors that affect student attitude toward biology. The assumption that students will acquire positive attitudes toward science as they learn more science is no longer valid.

Maqsud, Muhammad (1998) studied the effects of metacognitive instruction on mathematics achievement and attitude towards mathematics of low mathematics achievers.

Rajaswaminathan, B (1998) studied the impact of multi-media package on the teaching of commerce. The study revealed that the Inquiry Training Model was effective in promoting academic achievement, Inquiry skill, Creativity and Autonomy in Learning.

Flowers, Claudia P.; Hancock, Dawson R. & Joyner, Rowanne E (2000) investigated the impact of teachers' instructional strategies and college students' conceptual levels (high or low) on students' achievement and motivation to learn. Students in the non-direct instruction group, regardless of conceptual level, were more motivated than students in the direct instruction group. Overall, high conceptual-level students demonstrated higher achievement than low conceptual-level students.

Maccini, Paula; Hughes, Charles A. (2000) investigated the effects of an instructional strategy within a graduated teaching sequence on the representation and solution of problem-solving skills encompassing integer numbers for six secondary students with learning disabilities. Results indicate

problem-solving skills dramatically improved following instruction at the concrete, semi-concrete, and abstract levels.

Flowers, Claudia P., Hancock, Dawson R., & Joyner, Rowanne E. (2000) investigated the impact of teachers' instructional strategies (direct or non-direct) and college students' conceptual levels (high or low) on students' achievement and motivation to learn. Students in the non-direct instruction group, regardless of conceptual level, were more motivated than students in the direct instruction group. Overall, high conceptual-level students demonstrated higher achievement than low conceptual-level students.

Rathod and Verma (2000) compared the Integrated Teaching Strategy using Concept Attainment Model and Inquiry Training Model with Conventional Teaching in terms of inductive reasoning. The study found that the Integrated Teaching Strategy improved the inductive reasoning of students.

Saunders, Nancy; Batson, Ted & Saunders, George (2000) tested the correlations between the independent variables (19 instructional strategies) and each of 10 dependent variables (10 meta-skills). The three key findings of the study were: (1) instructional strategies clustered into four identifiable composites, each supported by a current and credible educational theory; (2) the curriculum composite of instructional strategies strongly correlated with reported attainment of all 10 meta-skills; and (3) the assessment composite of instructional strategies correlated with reported attainment of no meta-skills.

Paranjape, V.G (2001) developed an instructional system for mathematics through content-cum-methodology approach and compared its effectiveness with conventional instructional system. The developed instructional system found to be more effective. Sanders, Phyllis (2001) studied peer tutoring.

Autry, Sallie L.(2002) conducted a study to examine first-grade students' achievement in mathematics and attitudes toward mathematics using different instructional approaches. Findings suggest that the method of delivery of instruction between constructivist and direct instruction classroom environments does not affect student mathematical achievement and attitudes toward mathematics

Shetty, A.D. (2004) conducted a study to develop a self-instructional module on staff development for the secondary school principals. The study found that the modules are effective in staff development for secondary school principals.

Uzunboylu, Huseyin (2005) conducted a study on the effectiveness of web assisted English language instruction on the achievement and attitude of the students. Almekhlafi, Abdurrahman Ghaleb (2006) investigated the effect of Computer Assisted Language Learning (CALL) on elementary-prep school students' improvement in English as a foreign language (EFL). Results of Analysis of variance (ANOVA) showed a significant difference between CALL users and nonusers in favor of the experimental group ( $p < .05$ ).

Nwagbo, Chinwe (2006) investigated the relative efficacy of the guided inquiry and the expository teaching methods on the achievement in and attitude to biology of students of different levels of scientific literacy. The results showed that the guided inquiry method was significantly better than the expository method in enhancing cognitive achievement in biology for students of all levels of scientific literacy, especially the high ones.

Ballantine, Joan; Larres, Patricia McCourt (2007) examined final-year undergraduate accounting students' opinions on the effectiveness of a cooperative learning environment in delivering generic skills for their future professional accountancy careers. In particular, the study examines relative perceptions of effectiveness between students of differing academic abilities. The study concludes that the students found the cooperative learning approach beneficial in developing their generic skills. Further, no significant differences were found between the perceptions of the less and more able students.

Tandogan, Ruhan Ozkardes; Orhan, Akinoglu (2007) in a study determined that the implementation of problem-based active learning model had positively affected students' academic achievement and their attitudes towards the science course. It was also found that the application of problem-based active learning model affects students' conceptual development positively and keeps their misconceptions at the lowest level.

Pociask, Amanda; Settles, Jeri, (2007) conducted a study on the increasing student achievement through brain-based strategies. This research

indicated that incorporating MI into daily lesson improved students' self esteem, increased retention rates, enhanced motivation for learning, and decreased incidences of off-task behaviours.

Tandogan, Ruhan Ozkardes; Orhan, Akinoglu (2007) studied the effects of problem-based active learning in science education on students' academic achievement, attitude and concept learning. It was determined that the implementation of problem-based active learning model had positively affected students' academic achievement and their attitudes towards the science course.

The analysis of the studies on the effectiveness of instructional strategies reveals that most of the instructional strategies studied give better result compared to the conventional or the prevailing methods of instruction with which the experimental strategies have been compared. The strategies widely experimented are individualized instruction, cooperative learning, computerized instruction, modular approach etc. a few studies have been found on brain based teaching, problem based learning etc. But it is found that there is no studies which verify the effectiveness of the competency based instruction.

### **3.5. STUDIES ON ACHIEVEMENT, ATTITUDE AND SELF ESTEEM**

There are many studies on achievement, attitude and self esteem. Most of the studies which measure the achievement of students also verify and relate it with attitude and self esteem. Here studies have been

presented in two sections. The first section reviews studies related to attitude and achievement and the second section deals with studies related to achievement and self esteem. But still there are overlapping of reviews.

### **3.5.1. Studies on Attitude and Achievement**

Manav, R.V. (1981), studied the attitude, self concept and values of professional and non-professional college students and relationship of these variables with their achievement. The objectives of this study were to (i) to compare the attitude values and self concept of professional and non-professional college students, (ii) to compare the attitude values and self concept of students preparing for the engineering, medicine and teaching profession., (iii) to determine whether there were significant difference in the attitude, self concept and values of professional and no-professional college students, (iv) to determine whether there were significant difference in the attitude, self concept and values of students preparing for the above three professions, (v) to ascertain the relationship of attitude, self concept and values with achievement of professional and non-professional college students and (vi) to identify the factors that contributed more significantly to the academic achievement of students in a particular faculty. The study concluded that the teacher training students exhibited more positive attitude towards their teachers and non of the self concept variables was found to be significantly related to the students achievement. The study also found that there was no relationship between students' attitude and achievement.

Mandila, Shyam Singh (1988) studied the attitudes of secondary stage students towards science curriculum and its relationship with achievement motivation. The finding of the study shows that there is no difference among boys and girls and rural and urban students in respect of attitude towards science curriculum.

Darchingpui, (1989) examined the relationships between achievement in science, attitude toward science and problem solving ability among secondary school students. The study indicated significant relationship between scores on scientific attitude and achievement in science.

Boone, Harry N., Jr.; Newcomb, L. H. (1990) studied the effects of approach to teaching on student achievement, retention and attitude. High school agriculture teachers taught a unit using a problem-solving approach and one using a subject-matter approach. Data from an achievement test, attitude test, and teaching approach evaluation instrument showed higher achievement and better attitudes when the unit using problem solving was first and the subject-matter unit second. Problems arose with teachers keeping the two approaches distinct.

Kar, D.K., (1990) examined the relationship between attitude and achievement in general science of class IX students. The study found significant sex difference in attitude and positive relationship between attitude and achievement.

Knight, Janie S & Hawes, Kathryn (1990) in their study assessed students' attitudes toward 27 different strategies frequently used for reading instruction. Results suggested that for the class as a whole the preferred activities were: reading a story; practicing reading at the computer; and acting out a story. The lowest ranked activities were: practicing with word cards; meeting in a reading circle; and marking a page in the practice workbook. Such results give the classroom teacher the opportunity to make some instructional adjustments.

Abouserie, Reda *at el.*, (1992) studied the student attitudes toward using computer-assisted learning (CAL). It also explores the relationship between these attitudes and field-dependent or field-independent cognitive style, gender differences, and academic success. The study concludes that male subjects preferred CAL more than females did but otherwise found no gender, cognitive style, or academic success relationship to using CAL.

Orr, Kay L.; Davidson, Gayle V (1993) studied the effects of group computer-based instruction and learning style on achievement and attitude for 190 elementary school students in grades 4 and 5 in Austin (Texas). The cooperative learning methodology chosen for this study was "Learning Together." Students were assigned to six experimental conditions of cooperative or individual learning stratified by learning style. Results do not support the hypothesis of interaction between instructional delivery and learning style for both performance and attitude. Recommendations for further research are made, and some suggestions for applications of computer-based instruction are offered.

Burley, Hansel E. (1994) conducted a meta-analysis of the effects of developmental studies programs on college student achievement, attitude, and persistence. Because of the tremendous growth in college populations in the last 30 years, the number of programs designed to help underprepared students has grown significantly. Whether or not these programs work is still in question. Twenty-seven studies produced 40 effect sizes. The overall effect size was small ( $ES=.20$ ). The effect size for achievement effects was smaller ( $ES=.134$ ,  $K=23$ ); larger for attitude effects ( $ES =.27$ ,  $K=5$ ); and larger still for persistence effects ( $ES=.30$ ,  $K=12$ ). However, the averaged effect sizes are all small.

Mitra, Ananda (1994) studied the instructor-effect in determining effectiveness and attitude towards technology-assisted teaching by evaluating the perceived effectiveness of multimedia teaching aids and their implementation by experienced versus novice college course instructors.

Scarafiotti, Jamie C, and Others (1994) studied the effects of cooperative learning strategies on performance, attitude, and group behaviours in a technical team environment. The purpose of this study was to investigate the effects of cooperative learning strategies on: (1) performance, (2) attitude toward working in teams, and (3) group behaviours in a technical training context. Results indicated that the practice conducted in a cooperative manner had a significant effect on performance and group behaviours.

Houtz, Lynne E.(1995) investigated differences between middle school and junior high instructional strategies and the effects on adolescent attitude toward science in school and science achievement (n=570) and evaluated variations within grade level, gender, race, general ability, and socioeconomic group. Shashaani, Lily (1995) in a study examined gender differences in mathematics experience and attitudes as well as the association between math attitudes and computer attitudes. Results indicate a positive correlation between math experiences and attitudes and computer attitudes; and boys had more math experience and more positive attitudes.

Boser, Richard, *et al.*, (1996) studied the effect of selected instructional approaches in technology education on students' attitude toward technology. It also determined whether males and females responded differently to these instructional approaches. Results indicated the following: (1) the instructional approach did affect students' attitude toward technology, with the interdisciplinary approach changing attitudes the most and industrial arts having the least impact; (2) male and female students had different attitudes toward technology in regard to gender appropriateness, difficulty, and interest, with males having stereotypical views of females' abilities; (3) although attitudes were affected, there was no clear direction of change; (4) students perceived the benefits of technology but had narrow concepts of what comprised technology; and (5) students' attitudes toward technology were generally consistent with previous PATT and PATT-USA studies.

Reduc Doran, Martha S.; Klein, James D. (1996) investigated the effects of using individual, cooperative-dyad, and collaborative-dyad learning structures with a computer simulation. Results indicated that performance scores were high, and time on task similar, regardless of learning structure; however, students who worked alone expressed significantly more continuing motivation for their learning structure than students who worked with a partner. More than 60% of the student overall commented that they would enjoy working with a partner, but less than 50% said they thought they would learn more with a partner. Observation of the small groups indicated that students in the cooperative dyads exhibited significantly more discussion and provided more answers to their partners' questions than students in the collaborative dyads.

Hunt, Barbara (1997) studied the effect on mathematics achievement and attitude of homogeneous and heterogeneous grouping of gifted sixth-grade students. Comparison of gifted, average ability, and low ability sixth grade students, in either homogeneous or heterogeneous instructional settings, found a positive effect for achievement in mathematics for the gifted students in the homogeneous grouping. No significant difference in mathematics achievement based on grouping was found for average or low ability students. Gifted students overwhelmingly preferred the homogeneous setting.

Ma, Xin (1997) studied the reciprocal relationships between attitude toward mathematics and achievement in mathematics. High school seniors from the Dominican Republic completed mathematics achievement tests and a questionnaire on mathematics attitudes. Results indicated that reciprocal relationships existed, suggesting that the reciprocal nature between attitude and achievement can substantially modify their causal relationship.

Gibson, Helen L. (1998) in his study examined the relationship between an inquiry-based science program on students' attitudes towards science and interest in science careers several years after participation in the program. Results suggest that a two-week summer science program using an inquiry-based approach may have helped middle school students with a high level of interest in science maintain that level of interest through their years in high school. Teaching methods were shown to also affect student interest and achievement in science.

Maqsd, Muhammad (1998) studied the effects of metacognitive instruction on mathematics achievement and attitude towards mathematics of low mathematics achievers. Twenty South African students with low math achievement learned metacognitive strategies for math problems and 20 controls were taught math conventionally. General ability, metacognitive awareness, math achievement, and positive attitudes were all higher for the experimental group.

Lee, Christine Kim-Eng; Ng, Maureen; Phang, Rosalind (1999) investigated the effects of the use of cooperative learning in elementary social studies classrooms on social studies achievement, attitude towards the subject, and classroom climate. Results indicated that lower ability pupils benefited the most from the use of cooperative learning in social studies lessons. These students had better social studies test scores than the control class and did just as well as the high ability pupils on the recall items of the test. Attitude towards the subject in the experimental classes did not decline over the school year, but attitude towards the subject in the control classes declined significantly.

Freedman, Michael P (2001) investigated the use of a hands-on laboratory program as a means of improving attitude toward science and increasing achievement levels in science knowledge among students in a ninth grade physical science course. The findings showed that: (a) students who had regular laboratory instruction scored significantly higher ( $p < .05$ ) on the objective examination of achievement in science knowledge than students who had no laboratory experiences; (b) female students who had regular laboratory instruction scored significantly higher ( $p < .05$ ) on the objective examination of achievement in science knowledge than female students who had no laboratory experiences; (c) female and male students within the treatment group did not differ significantly on the objective examination of achievement in science knowledge.

Teshome, Yalem; Maushak, Nancy; Athreya, Krishna (2001) conducted a study titled 'Attitude toward Informal Science and Math: A Survey of Boys and Girls Participating in Hands-On Science and Math'. In this study girls showed a slightly higher mean, implying greater recognition that achievement in science and math is not related to gender.

Autry, Sallie L (2002) conducted a study to examine first-grade students' achievement in mathematics and attitudes toward mathematics using different instructional approaches. One class was taught by a teacher using a direct instructional approach while the other class was taught using a constructivist approach. The Metropolitan Achievement Test, interviews, student observations, and student journals were used to collect data. Findings suggest that the method of delivery of instruction between constructivist and direct instruction classroom environments does not affect student mathematical achievement and attitudes toward mathematics.

Shahapur, Nagappa, P. (2002), studied the attitude of secondary school students towards computer assisted learning. The study found sex differences in attitudes as well as differences in students' attitudes between government and aided secondary schools.

Adesoji, Francis Adewumi; Raimi, Sikiru Morakinyo, (2004) studied the effects of enhanced laboratory instructional technique on senior secondary students' attitude toward chemistry in Oyo Township, Oyo State, Nigeria. The study examined the effect of supplementing laboratory instruction with problem solving strategy and or practical skills teaching on students' attitude toward chemistry. A pretest-posttest nonrandomized control group in a quasi-experimental setting using a 4 [times] 2 [times] 2 factorial representations formed the design of the study. The results revealed that the use of enhanced laboratory instructional strategy significantly improved the attitudes of students toward chemistry.

Caleon, Imelda; Subramaniam, R (2005) explored the impact of a cryogenics-based enrichment programme, which involves demonstrations that use liquid nitrogen, on attitudes towards science and the learning of science concepts. Overall, the students viewed science as more enjoyable and acquired more interest in wanting to pursue science careers after experiencing the cryogenics-based enrichment programme, but no remarkable and conclusive change was detected in their perceptions of the social implications of science. Significant knowledge gains were also detected among the participants. The programme did not have any differential impact on students of either gender and from two learning streams, both cognitively and affectively

Falsetti, Marcela C.; Rodriguez, Mabel A, (2005), developed a proposal for improving students' mathematical attitude based on mathematical modelling. The study shows evidence of positive attitudinal change in the students.

Johnson, Genevieve; Howell, Andrew, (2005) studied the attitude toward instructional technology following required vs. optional WebCT usage. Across groups, positive changes from pre to postcourse occurred on seven of the ten items that evaluated attitude toward instructional technology. Additionally, students required to use WebCT showed a greater overall change in attitude from pre to postcourse and made greater use of optional online course material relative to those whose use of WebCT was optional. Requiring the use of technology in course work may generate favorable attitudes toward technology and thereby foster greater utilization of other available computer-based applications.

Uzunboylu, Huseyin (2005) conducted a study on the effectiveness of web assisted English language instruction on the achievement and attitude of the students. The experiment group of the study has used a web site that was prepared and they made the exercises of English language grammar in the study. The control group subjects have similar learning activities through traditional learning methods. It was found that the English language grammar achievement of the experimental groups' subjects who made the English grammar exercises on Web assisted was higher than the control groups' subjects who made them using traditional method.

Alajaaski, Jarkko, (2006) conducted a study to clarify how a web technology-based approach (e-Study approach) affects students' attitudes towards (1) studying mathematics/statistics, and (2) perceiving the very idea of the e-Study approach. Attitude questionnaires were presented to the students at the beginning (pre-test) and end (post-test) of the study course. The attitudes towards studying mathematics/statistics showed neither overall nor between-group changes (groupings by gender, ICT-orientation, mathematical background). The overall attitudes towards the e-Study approach developed in the negative direction. However, significant between-group differences were found: the attitudes of (1) female students, (2) students with a higher ICT-orientation, and (3) students with a stronger mathematical background developed negatively while the attitudes of (4) male students, (5) students with a lower ICT-orientation, and (6) students with a weaker mathematical background developed positively.

Almekhlafi, Abdurrahman Ghaleb (2006), investigated the effect of Computer Assisted Language Learning (CALL) on elementary-prep school students' improvement in English as a foreign language (EFL). Results of Analysis of variance (ANOVA) showed a significant difference between CALL users and nonusers in favour of the experimental group ( $p < .05$ ). In addition, a questionnaire was administered to CALL users to investigate their attitude, perceived utility, and intention to use CALL in the future. Students in the experimental group had a positive attitude toward CALL, perceived its utility for helping them learn EFL, and had a strong intention to use it in the future.

Liu, Min., (2006), examined the effect of a hypermedia-enhanced problem-based learning environment in astronomy on sixth-graders' science knowledge, attitude toward learning science, and motivation toward learning. It was found that the students had significantly increased their science knowledge from pretest to post test and also retained much of what they had learned after two weeks. Students' attitudes toward science and their intrinsic goal orientation were significantly higher after using the technology application. Students' science knowledge scores were positively related to their attitudes and intrinsic goal orientation.

Nwagbo, Chinwe (2006) investigated the relative efficacy of the guided inquiry and the expository teaching methods on the achievement in and attitude to biology of students of different levels of scientific literacy. A pre-test, post-test, non-equivalent control group design was adopted for the study. The results showed that the guided inquiry method was significantly better than the expository method in enhancing cognitive achievement in biology for students of all levels of scientific literacy, especially the high ones. Students of different levels of scientific literacy showed positive attitude to biology, when the two methods were used. The interactive effects of teaching methods and scientific literacy levels, on both achievement in and attitude to biology, were not significant ( $P$  less than 0.05).

Ocak, Mehmet A (2006) studied the relationship between gender and students' attitude and experience of using a mathematical software program (MATLAB). The findings of the study indicated that gender differences are not related to students' attitude and experience on the program. The results revealed slightly positive correlation between and students' attitude and experience on the program.

Van Eck, Richard, (2006) studied the effect of contextual pedagogical advisement (CPA) and competition on attitude toward mathematics in a computer-based simulation game. Results indicate that contextual pedagogical advisement can result in lower anxiety toward mathematics scores, especially under competitive conditions.

Anderson, Mark W.; Teisl, Mario F. *at el.*, (2007) assessed changes in students' environmental attitudes and values in response to "different" courses designed to address this specific general education requirement.

Tandogan, Ruhan Ozkardes; Orhan, Akinoglu (2007), studied the effects of problem-based active learning in science education on students' academic achievement and concept learning. In the study it was determined that the implementation of problem-based active learning model had positively affected students' academic achievement and their attitudes towards the science course. It was also found that the application of problem-based active learning model affects students' conceptual development positively and keeps their misconceptions at the lowest level.

Yenilmez, Kursat (2007), studied the relationship among learning styles, mathematics attitude, and anxiety for students in secondary school teacher training institutes in Turkey. Findings obtained from results of the research show that math anxiety and math attitude are efficient in predicting preferred learning styles of secondary school teacher students in learning mathematics.

Faris, Ahmed (2008) studied the impact of PBL on the students' attitudes towards science among nine graders in Hamza Independent School. The analysis of the results and reviewing the reflective journal showed that 22 students out of 25 students, who participated in the project, have strong positive attitudes towards learning science, working in groups and participating in project based learning. Only 3 students could not yet determine their educational needs.

Morgil, Inci; Gungor Seyhan *at el.*, (2008) studied the effect of web-based project applications on students' attitudes towards chemistry. Using paired-samples t-test has compared pre- and post-test results of attitude scale and a statistical difference has been found. Also a relationship between students' attitudes and performance has been examined by using regression analyze.

Tarim, Kamuran; Akdeniz, Fikri, (2008) compared the effects of Team Assisted Individualization (TAI) and Student Teams-Achievement Divisions (STAD) on fourth grade students' academic achievement in and attitudes towards mathematics. Seven classes of a school were randomly selected for this experimental study. As a result of this comparison, both the TAI and STAD methods were found to have positive effects ( $d = 1.003$  for TAI and  $d = 0.40$  for STAD) on students' academic achievement in mathematics. The pair wise comparisons showed that the TAI method had a more significant effect than the STAD method. But no significant difference was observed regarding students' attitudes towards mathematics.

Wolf, Stephen J.; Fraser, Barry J, (2008) compared inquiry and non-inquiry laboratory teaching in terms of students' perceptions of the classroom learning environment, attitudes toward science, and achievement among middle-school physical science students. Inquiry instruction promoted more student cohesiveness than non-inquiry instruction (effect size of one-third of a standard deviation), and inquiry-based laboratory activities were found to be differentially effective for male and female students.

The studies reviewed above shows that attitude and achievement are closely related. In most of the studies which shows the effectiveness of instruction in terms of achievement also shows positive attitudinal changes in learners. But no studies were conducted to know the relationship between competency based instruction and attitude of learners.

### **3.5.2. Studies on Self-Esteem and Achievement**

Self-esteem is the way one feels about oneself, including the degree to which one possesses self-respect and self-acceptance. Self-esteem can be defined as one's feeling of self-competence and self-worth. Self-esteem is the sense of personal worth and competence that persons associate with their self-concepts. The esteem needs were studied by Abraham Maslow, and in his book 'Motivation and Personality', he reported ways that self-esteem is related to the process of becoming a self-actualizing person (Corsini, 1994).

In the words of Dr. Nathaniel Branden, widely regarded as 'the father of the self-esteem movement', self-esteem is "the disposition to experience oneself as competent to cope with the basic challenges of life and as worthy of happiness." Self-esteem is the opinion you have of yourself. It is based on your attitude to the following:

- ❖ Your value as a person
- ❖ The job you do
- ❖ Your achievements
- ❖ How you think others see you
- ❖ Your purpose in life
- ❖ Your place in the world
- ❖ Your potential for success
- ❖ Your strengths and weaknesses
- ❖ Your social status and how you relate to others
- ❖ Your independence or ability to stand on your own feet.

According to Maslow, all people have a need or desire for a stable, firmly based, sense of self-regard, or self-respect, and they need the esteem from themselves and from others. Maslow classified the esteem needs into two categories. The first set of esteem needs include the desire for strength, for achievement, for adequacy, for mastery, for competence, for self-confidence and for a degree of independence and freedom. The second category of esteem needs involve the desire for prestige, status recognition, attention, dignity and appreciation - all of which are characteristics of esteem based on other's views of the person.

Karen Horney, in 'Our Inner Conflicts' (cited by Corsini, 1994), also wrote about the antecedents of self-esteem. She contended that children who did not receive adequate parental love, acceptance and approval tend to develop a pattern of unsatisfiable needs. Some of these needs include extreme demands for affection and approval, the craving for power, and the desire for extreme degrees of prestige and for personal achievement. Thus, for persons who developed low level of self-esteem, she postulated that they would have an inordinate need for approval and affection. They would be the complaint types who would develop an orientation of "moving towards people". Feeling weak and helpless, they would subordinate themselves, to others and behave in ways, they determine would bring approval.

As might be expected, love, warmth and acceptance have been demonstrated to be extremely important in terms of developing a high degree of self-esteem. This sense of trust becomes a major safeguard against anxiety

in coping with the world, giving the infant the feeling of basic security needed to meet the challenges in the environment. In researching the basic components of self-esteem, Stanley Coopersmith found that high self-esteem results from parental acceptance, the setting of limits and freedom for individual action within realistic limits. Coopersmith, in his work, 'The antecedents of self esteem', discussed love and acceptances as broader pattern of positive family inter- relationship.

The love tends to be accompanied by an interest in which the child is doing, by a respect for the child as a person, and by displaying signs of affection and warmth toward the child. These children are given encouragement to face the world and to interact with others. Basic limits are provided for the protection of the child, yet while these limits are firm, they are restrictive. Further, these parents provide encouragement to their children to attain realistic standards, not to meet with defeat and low self-esteem by setting perfectionistic and highly unrealistic goals. Coopersmith also found that religion, ethnic group, social class and traumatic experiences in childhood were relatively weakly related to one's self-esteem and is affected more by relationship with parents and how these significant persons treated the child during his or her developing years. In short, the critical factors as antecedents to one's self-esteem are the quality and amount of parental attention and acceptance one received as a child (Corsisni, 1994).

Self-esteem is a multi dimensional concept, as it exists in degrees. It is a vitally important component of one's self-concept. Thus an individual

might have high self-esteem in inter personal relationships, yet lack esteem with regard to mastery of academics. Esteem is also related to one's personal identity, as William Glasser has noted in 'Reality Therapy'. According to Glasser, people have a need to develop a 'success identity' versus a 'failure identity'. Glasser contends that, in the formation of one's self identity, others play a significant role in helping the individual to see himself or herself a success or a failure. Having love and acceptance is directly related to a success identity, lacking love and acceptance is related to a 'failure identity' (Corsini, 1994).

Self-esteem plays a crucial role in psychological well being. Individuals who are high in self-esteem tend to be at less risk for depression (Crandall, 1973) and hopelessness (Abramson, Metalsky, and Alloy, 1989). Self-esteem is a better predictor of satisfaction with one's life than any objective characteristic of individuals, such as income or age (Diener, 1984). High self-esteem has been implicated in good mental health (Baumeister, 1991; Bednar et al., 1989; Taylor & Brown, 1988).

Thomas and Sanandaraj (1982) aimed at determining the extent of relation between scores on self-esteem and academic achievement. A proportionate stratified sample of 370 ninth grade students (196 boys and 174 girls) has been used for the study. Statistical techniques like Pearson and t-test have been used for analyzing the data. The results indicated that there is significant positive correlation between the variables under study. The study

further revealed that high achievers differ significantly from low achievers in self-esteem at .01 level.

Brookover, Thomas, and Patterson (1985) found there was a significant relationship between self-concept and academic achievement.

Holly, (1987) compiled a summary of all the studies and indicated that most supported the idea that self-esteem was more likely the result than the cause of academic achievement. However, he acknowledged that a certain level of self-esteem is required in order for a student to achieve academic success and that self-esteem and achievement go hand in hand. They feed each other.

Varma and Dashora (1988) attempted to study the relationship between self-esteem and academic achievement of male and female adolescents. The finding revealed non-significant positive relationship between self-esteem and academic achievement of male and female adolescents. There is no significant difference between high and low self-esteem groups of male and female adolescents on academic achievement.

Vinutha et al. (1989) studied Self- Esteem in 9<sup>th</sup> standard children by using the culture free self-esteem inventory of Battle (1981) form A, was administered, to a sample of 184 boys and 184 girls of 9<sup>th</sup> standard who were matched for age. The results revealed high self-esteem for boys and girls. But statistical examination for the significant difference between the groups showed that, boys have significantly high self-esteem, or general, social and academic self-esteem than girls. Girls are more defensive than boys.

Covington, (1989) found that as the level of self-esteem increases, so do achievement scores; and as self-esteem decreases, so does achievement. Furthermore, and perhaps most important, he concluded that self-esteem can be modified through direct instruction and that such instruction can lead to achievement gains.

Albert, Linda (1990) studied the impact of cooperative discipline on self esteem of students. Nave, Bill. (1990) found that student self-esteem is more highly correlated with student success than is intelligence quotient.

Fishere et al. (1991) completed a codependency measure and the short form of the Coopersmith Self-Esteem Inventories. Girls had higher codependency scores than boys, but there was no difference between sexes on self-esteem. There was a significant gender difference on the self-esteem lie scores, with boys tending to exaggerate toward more socially appropriate responses. Self-esteem and codependency scores correlated significantly and negatively.

Gaspard, Mae R.; Burnett, Michael F (1991) studied the relationship between self-esteem and academic achievement of rural ninth grade students. Among 66 rural Louisiana ninth graders, 52 percent of variability in grade point average was explained by gender, school self-esteem, self-esteem scale lie score, father's educational attainment, whether student lived with parents, number of younger siblings, and participation in extracurricular activities.

Hoglund, Connie L.; Bell, Terece S. (1991) conducted a longitudinal study of self-esteem in children from 7-11 years. Result showed no

significant change in self-reported self-esteem across time in both sexes; no consistent correlation between self-esteem and intelligence quotient; and no significant relationship between level of self-esteem and amount of religious practice in the family.

Moore, Johnny. (1991) designed instructional strategies and executed the same with the objectives of improving the self-esteem of secondary at-risk students, changing the negative feeling that at-risk students have about themselves, and helping at-risk students to become empowered to do something about their poor achievement in school. Eighty-six percent of the targeted students made gains of 10 or more points in their self-esteem rating. Seventy-six percent of the students made a 3-month grade level gain in language skills through use of computer-assisted information.

Sheridan, Margaret K (1991) in a study found that increasing self-esteem has a positive impact on the competency of children.

Howerton, D. Lynn, (1992) studied the relationship between self-esteem and academic achievement of at-risk adolescent black males in grades 6, 7, and 8. The overall average self-esteem score for these subjects was significantly lower than for most means reported in normative studies, but not significantly lower than means reported in studies of rural ninth graders, high school black males, and blacks in grades 3 through 8. Self-esteem was significantly related to standardized test battery composite score and end-of-year school grade average. SEI was also significantly related to grades in English and social studies, but not mathematics and science.

Liu, Xiaoru *et al.*, (1992) examined relationships between academic achievement and general self-esteem in light of variables of deviance, motivation, psychological distress, illness, and school absence using data from 242 high achieving students in grades 7 through 12 in a private, independent coeducational preparatory school. The study found that the general self-esteem influences and is influenced by academic achievement.

Walz & Bleuer, (1992) reported that the factors which are important to school success, such as positive feelings about self, absenteeism, and school retention, are affected by successful school self-esteem programs.

Johnson, David W, (1993) studied the impact of cooperative and individualistic learning on high-ability students' achievement, self-esteem, and social acceptance. The study finds that achievement was higher on recall and higher order reasoning measures and that the students demonstrated higher academic self-esteem and greater cohesion in the cooperative condition.

Hall, Rita, (1994), studied the effect of cooperative learning, cross age tutoring and self-esteem enhancing strategies on student behaviour and reading achievement. Analysis of probable cause data indicated that low levels of self-esteem were an underlying factor in academic achievement and poor student behaviour.

Sundararajan *et al.* (1994) conducted a study on the self-esteem of high school students. The study revealed that there is significant difference

between self-esteem of boys and girls but no significant difference was found between urban and rural students.

Tanksley, Mary D, (1994), in a study attempted to build self-esteem for fifth grade students who exhibited low self-esteem by incorporating different learning and teaching strategies. Results indicated that classroom behaviour, attendance, and academic achievement improved for the study group. A self-report questionnaire revealed that the students' self esteem also improved. The researcher considered parent involvement as critical in developing a positive self-esteem for some students.

Waggoner, Jan E. (1994) investigated self-esteem factors related to the transition between sixth and seventh grade for students in teamed and nonteamed instructional organization. No statistical differences were found in responses by gender, days absent from school, order in which personal attributes were rated, or self-esteem. Interviews with teamed teachers, compared to traditional teachers, indicated that they felt their students elicited fewer indicators of stress in progressing to junior high.

Wigfield, Allan; Eccles, Jacquelynne S. (1994) examined elementary school students' self-beliefs over time and how the transition to middle school affected those beliefs and found that self-esteem did not change during elementary school but decreased following the middle school transition. Competence beliefs and beliefs about the usefulness and importance of different activities generally decreased. Subjects' beliefs and values differed along gender lines.

Wiggins, James D, (1994) studied the relationship of self-esteem to grades, achievement scores, and other factors critical to school success. Findings seemed to reaffirm importance of self-esteem to academic school success. School Form of the Self-Esteem Inventory scores were more predictive of grades than were composite score on standardized test.

Daniel, Larry G.; King, Debra A., (1995) conducted a study conducted to determine the degree to which children's perceived self-esteem is related to their overall academic achievement as measured by their performance on a standardized achievement test battery. Specifically, the study sought to determine the dimensions of perceived self-esteem that would be most clearly associated with higher levels of student achievement. The results confirmed the existence of a positive relationship between self-esteem and achievement. Results suggest that schools should address both self-esteem and academic achievement as integral parts of the learning experience.

Sekowski, Andrzej (1995) examines the influence of self-esteem on achievements of students who are gifted, in relation to the theories of Virginia Satir. The study reveals the influences of school and family on self-esteem of youngsters who are gifted.

Brandt, Fred J and Ellsworth, Nancy J. (1996) studied the effects of cooperative learning on the academic achievement and self-esteem of urban adolescents with learning disabilities. Results indicated that cooperative learning was more effective than traditional non-cooperative learning in

improving academic achievement in the students with learning disabilities. Increased self-esteem in cooperative learning students was not found.

Burnett, Paul C. (1996) investigated the impact of Cognitive Behavioural Therapy (CBT) and Rational Emotive Therapy (RET) self-enhancement programs on children's self-talk, self-esteem, and irrational beliefs. Results indicated that CBT led to a decrease in negative self-talk whereas RET did not affect this variable; results also indicated that RET led to a decrease in the dependence irrational belief whereas CBT did not influence these scores over time. It was also suggested that children changed over time irrespective of which program they received. Nonetheless, both intervention programs led to an increase in positive self-talk and an increase in positive rational beliefs in the conformity and discomfort intolerance areas.

Higbee, Jeanne; Dwinell, Patricia, (1996) examined the relationship between self-esteem and affective variables (such as text anxiety, mathematics anxiety and academic autonomy). Significant positive correlations were found between self-esteem and academic autonomy, lifestyle choice, and interpersonal relationships.

Karunanidhi et al (1996) aimed to find the effect of perceived problems on self-esteem and gender differences. Results indicated that girls perceived less number of problems and higher levels self-esteem than boys. Moreover, both boys and girls have scored high on global self-esteem and low on physical self-esteem. Over all self-esteem was found to be high for girls

than for boys. There was a significant relationship between perceived problems and self-esteem.

Sterbin, Allan; Rakow, Ernest (1996) studied the direct effects of locus of control and self-esteem on standardized test scores. Results show that locus of control is significantly correlated with standardized test scores ( $r=0.29$ ), as is self-esteem ( $r=0.16$ ). Additionally, the two measures are highly correlated with each other ( $r=0.58$ ). These findings suggest that the constructs need better operational definitions, perhaps definitions that are more situations specific. Research findings suggest that the relationship between self-esteem and student achievement is more complex than it first appears. Self-esteem is significantly related to socioeconomic status, gender, and locus of control, variables that must be taken into account before the effects of self-esteem on achievement can be assessed.

Yuhas, Patricia (1996) examined the effects of positive teaching techniques, non-confrontational teacher attitudes, and a pleasant classroom environment on the self-esteem of special education students. Results revealed that no significant difference in the subject students' positive self-esteem existed after the 12-week period of instruction. However, findings suggest, with the mean score difference of 9.06, that a more significant difference might result from a prolonged period of exposure.

Nichols, Joe D and Utesch, William E, (1998) studied the urban middle and high school students' changes in their motivation as they entered and exited an alternative learning program that emphasized academic skills,

self-esteem, and social skills. Students who completed the program experienced increases in extrinsic motivation, self-esteem, and persistence toward learning tasks.

Yeung, Ka Wah; Watkins, David, (1998) indicated that student teachers' personal and professional self-esteem differed from each other as they were subject to different influences. The development of their professional self-esteem depended on the manner in which they perceived their teaching efficacy, teacher student relationships, and commitment to teaching.

Davies, Julie and Brember, Ivy (1999) conducted a cross-sectional study on the reading and mathematics attainments and self-esteem. The study established the correlation of reading and mathematics attainments with self-esteem of students.

Rubin, Christa. (1999) in his study identified low self-esteem as the underlying factor contributing to poor school attitudes, negative self feelings, difficulty making friends, and difficulty in working independently and completing assignments.

Tedesco, Lucyann M. (1999) studied the effects of cooperative learning on self-esteem. The study found that students who work together develop social skills and have an understanding of multiculturalism, human systems, and group and organizational development. Self-esteem is improved due to positive peer relations and to improved academic achievement. The intergroup relationships, the acceptance of diversity, and the appreciation for

peer contributions build self-esteem and commitment to the common good. In addition, frequent opportunities to engage in peer and self-evaluation give students valuable self-esteem and the practice they need to become effective judges of healthy group functioning in school, on the job, and at home.

Ross, Catherine E and Broh, Beckett A (2000) in their study explored the roles of self-esteem and the sense of personal control in the academic achievement.

Slavkin, Michael. (2001) investigates the role of gender and self-esteem on early adolescent girls' abilities to solve problems when participating in natural science-related activities.

Hodgson, J.; Hoover, L.; Kumpf, S.; Williams, L. (2002) examined four factors (academics, peer relationships, personal security, and family acceptance) as they related to the self-esteem of students with and without disabilities. Results of the survey indicate that there was no significant difference in the overall self-esteem of students in general education and special education within gender, primary handicapping conditions, placement, or grade. In addition, students with emotional and/or behavioural disabilities reported a more positive self-esteem in this component than other students with disabilities.

Moore, Malena K, (2003) compared the self-esteem of students in learning environments with varying degrees of emphasis on learner-centred practices. Results indicate that environments with higher perceived learner-centeredness also have higher self-esteem scores.

Lawrence, Julia; Ashford, Kelly; Dent, Paul, (2006) investigated differences in the coping strategies adopted by male and female first year students in a higher education environment and the extent to which such strategies had an impact on self-esteem and attainment. Results revealed significant differences between males and females in terms of engagement in coping strategies and academic attainment. Specifically, males exhibited greater ability to detach themselves from the emotions of a situation, were more inclined to demonstrate emotional inhibition or "bottling up" of emotions and reported higher self-esteem. In addition, it was observed that females attained at a significantly higher level than males.

Yu, C. C. W.; Chan, Scarlet; Cheng, Frances; Sung, R. Y. T.; Hau, Kit-Tai (2006) investigated the relations among academic achievement, self-esteem, school conduct and physical activity level. Results showed that high academic achievers consistently attained better school conduct marks. However, physical activity level was quite an independent entity that was related neither to academic achievement nor school conduct. Furthermore, regression analyses showed that only academically high-achieving boys and physically active boys had higher self-esteem.

Aricak, Osman Tolga, (2007) compared the vocational self-esteem of candidates of different professions. There are statistically significant differences between departments. Female students obtained significantly higher VSE scores in comparison to male students. Failed students' VSE scores were lower than that of successful students. The VSE of the students

who were satisfied with their course of study was higher than that of those who were not satisfied.

Yang, Raymond K.; Fetsch, Robert J., (2007) conducted a study of the self-esteem of rural children. Comparing these children's self-rated competencies to extant norms suggests that rural children's self-perceptions are not distinctly different from suburban and urban children. Rural children's feelings of self-worth and self-assessments of scholastic competence are comparable to or higher than metropolitan norms. Rural and urban boys rate themselves higher in athletic competence than girls. The impact of rural - urban differences on children may be less marked than suspected.

Chang, Chun-Yen; Cheng, Wei-Ying, (2008), in a study explored the interrelationship between senior high school students' science achievement (SA) and their self-confidence and interest in science (SCIS) with a representative sample of approximately 1,044 11th-grade students from 30 classes attending four high schools throughout Taiwan. Statistical analyses indicated that a statistically significant correlation existed between students' SA and their SCIS with a moderate effect size; the correlation is even higher with almost large effect sizes for a subsample of higher-SCIS and lower-SCIS students. Results of t-test analysis also revealed that there were significant mean differences in students' SA and their knowledge (including physics, chemistry, biology, and earth sciences subscales) and reasoning skill subtests scores between higher-SCIS and lower-SCIS students, with generally large effect sizes. Stepwise regression analyses on higher-SCIS and lower-SCIS

students also suggested that both students' SCIS subscales significantly explain the variance of their SA, knowledge, and reasoning ability with large effect sizes.

Roman, Sergio; Cuestas, Pedro J & Fenollar, Pedro, (2008) conducted an examination of the interrelationships between self-esteem, others' expectations, family support, learning approaches and academic achievement. The analyses, through structural equation modeling, provided support for the positive effects of self-esteem and family support in university students' learning and achievement. Others' expectations increased both surface learning and effort. Implications for higher education are discussed.

### **3.6. CONCLUSION**

An analysis of the studies reveals that there is limited number of studies on identification of competencies. The investigator could not find any studies related to the identification competencies to be developed in accountancy at higher secondary level. Review of studies in the field of accountancy shows the scarcity of empirical research in this area.

The analysis of the studies on the effectiveness of instructional strategies reveals that most of the instructional strategies studied have provided better result compared to the conventional or the prevailing methods of instruction. The strategies widely experimented are individualized instruction, cooperative learning, computerized instruction, modular approach etc. a few studies have been found on brain based teaching, problem based learning etc.

The search of studies related to achievement, attitude and self esteem give abundant studies which show their correlation. But the investigator found no studies relating attitude and self esteem with competency based instruction.

It is also noted that there are only a few foreign studies on competency based instruction. In Indian context research studies in this area are found to be very scanty. In this context, the investigator thought of conducting a study of this kind.

# **METHODOLOGY**

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- 4.1. Identification of Competencies
- 4.2. Development of Competency Based Instructional Modules
- 4.3. Experimentation and Data Collection
  - 4.3.1. Study Design
  - 4.3.2. Variables of the Study
  - 4.3.3. Sample Design
  - 4.3.4. Tools Used
- 4.3.5. Experimental Procedure

# METHODOLOGY

This chapter deals with the methodology followed in the present study. The major objective of the study is to examine the effectiveness of Competency Based Instruction in the attainment of mastery level learning in accountancy among higher secondary school students.

As the details of competencies to be mastered in Accountancy at higher secondary level were not readily available, the investigator as part of the study has identified the competencies and sub competencies that are to be mastered in each areas of accountancy at higher secondary level. The study has been designed with the following objectives.

- To identify the major competencies to be mastered by students in accountancy at higher secondary level
- To identify the sub competencies to be acquired by the students for the mastery of each of the competencies in Accountancy
- To develop competency based instructional modules for mastery of selected competencies in accountancy.
- To compare the effectiveness of the competency based instruction (CBI) and conventional method of teaching (CMT) in the mastery of competencies in accountancy
- To study the effect of the competency based approach to teaching accountancy on the self esteem of the students

- To study whether the competency based approach to teaching accountancy influence the attitude of the students towards accountancy.

In order to collect the necessary data for verifying the hypotheses mentioned earlier the investigator followed the following procedure

1. *Identification of Competencies*
2. *Development of Competency Based Instructional Module*
3. *Experimentation*

#### **4.1. IDENTIFICATION OF COMPETENCIES**

As the details of competencies to be mastered by the higher secondary school students in accountancy are not readily available the investigator identified the competencies. The identification of the competencies involves the following strategies.

1. Document Analysis
2. Workshop of Teachers
3. Consultation with Experts
4. Collection and Analysis of Teachers' Observations

##### **4.1.1. Document Analysis**

For the purpose of identifying the competencies in accountancy, the investigator analysed the curriculum prescribed for higher secondary course by the NCERT and SCERT (Kerala). The competencies and subcompetencies in

each of the areas in accountancy of higher secondary course have been identified. For the purpose of analysis, the content of the curriculum has been divided into eleven broad areas. Then each area has been analysed in detail to identify the competencies and the relevant subcompetencies.

The investigator developed the draft list of competencies. Detailed discussion with experts and working teachers has been done by the investigator in advance before preparing the draft of competencies.

#### **4.1.2. Workshop of Teachers**

After preparing the draft of the list of competencies, the investigator conducted workshop of higher secondary school commerce teachers. Before discussing the draft list of competencies, the participants of the workshop has been given orientation on competency based instruction and the nature of competency statements. 50 higher secondary school teachers and 5 teacher educators were participated in the workshop. The participants were divided into five groups and each group has been entrusted with specific areas of the curriculum content. In the initial stage the participants discusses the draft list of competencies in their group and noted their suggestions, remarks and alterations. Then they presented the same in the general group discussion for approval, so the possibility of over looking and error has been minimised.

#### **4.1.3. Consultation with Experts**

The identified competencies were submitted to a panel of experts for their validation. The panel consist of 5 experts from the field of instruction. It

includes faculty members of university departments and training colleges. The draft competencies formulated through curriculum analysis and workshop has been submitted to the members of the panel. The modifications and suggestions made by the experts were incorporated and hence the list of competencies has been finalised.

An illustrative example for competency and its sub competencies is given below.

**Area :** Financial Statements

**Competency :** Preparing Trading Account

**Sub competencies:**

- i. To list the items comes in the Trading Account
- ii. To use appropriate format for preparing Trading Account
- iii. To record various items in the Trading Account in their proper order
- iv. To compute the gross profit /gross loss from the Trading Account
- v. To make necessary adjustments in the Trading Account

#### **4.1.4. Collection and Analysis of Teachers' Observations on Identified Competencies**

To verify the quality of competency statements it was decided to collect the observations of higher secondary school commerce teachers about the identified competencies. The essential attributes that are to be satisfied by competency statements are identified and an observation schedule has been

developed to verify the possession of the same by the present list of competencies.

#### **4.1.4.1. Observation Schedule**

An observation schedule has been developed by the investigator to collect the observations of teachers about the possession of the essential attributes by the competency statements. The tool consists of twenty statements expressing the observations of higher secondary commerce teachers regarding the quality of identified competencies.

#### **4.1.4.2. Attributes Observed**

The competency statements should possess the six essential attributes as mentioned in the second chapter. The categorization of the total items of the observation schedule on the basis of the essential attributes is given in table 4.1.

**Table 4.1**

**The attributes and the Distribution of Items**

Sl. No	Attributes	Item No.	No. of Items
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1.	Functionality	12,17,18,20	4
2.	Achievability	7,11,13,16	4
3.	Communicability	1,5	4
4.	Evaluability	2,4,6,14	4
5	Learning Continuum	3,8,9,19	4
6	Coverage	10,15	2
Total		20	20

#### 4.1.4.3. Reliability and Validity of the Observation Schedule

The internal consistency of the schedule has been established by split half method and found to be very high. The coefficient of correlation obtained was 0.92.

The observation schedule involves statements under the six essential attributes categories. The items under each attribute were selected after the judgment of experts in the field of evaluation. Hence the tool possesses high content validity and face validity.

The analysis of the teachers' observations on the identified competencies has been presented in the chapter IV along with the list of competencies. A copy of the observation schedule has been given in appendix IX.

## 4.2. DEVELOPMENT OF COMPETENCY BASED INSTRUCTIONAL MODULES

The major objective of the study is to verify the effectiveness of the competency based instruction in the attainment of mastery level learning in accountancy among the higher secondary students compared to conventional method of teaching. Even though a variety of methods can be adopted to impart competency based instruction, in the present study modular approach has been accepted due to the special nature of the accountancy subject. Since the Competency Based Instructional Modules in Accountancy for the higher secondary level were not available, the investigator developed the same. For the preparation of modules three areas in accountancy has been selected, which constitute the basic accounting cycle from recording of transactions to the preparation of financial statements. The areas are:

- 1. Origin and Recording of Transactions*
- 2. Trial Balance and*
- 3. Financial Statements*

The competencies and sub competencies identified from these areas of accountancy has been used as the base for preparing the modules. Fourteen modules have been developed by the investigator.

#### **4.2.1. Construction of the Modules**

For the construction of competency based instructional modules the following sequence has been followed by the investigator.

- a) Selecting the competency for the preparation of the module
- b) Deciding the performance objectives of the module. It is the sub competencies which facilitate the attainment of the major competency.

- c) Preparation of the Pre-requisite test to determine the level of mastery of competencies needed by the learners to begin the activities and tasks of the modules. (The pre-requisite test in accountancy has been given as appendix III).
- d) The prepared modules have been tried out in a sample of 30 students and their difficulties were noted and analysed.
- e) The modules have been modified on the basis of the observations made by the investigator and comments of the students, teachers and experts.

#### **4.2.2. Design of the Competency Based Instructional Modules**

The Competency Based Instructional Modules are designed as an instructional material to attain mastery of the competencies identified in each area of accountancy. The Competency Based Instructional Modules demands keen attention and participation from the part of the teacher. The teacher has to participate in each small groups formed in the class. The teacher is also required to give individualised attention as and when required. The Competency Based Instructional Modules will enhance the participation of the students as well as the teacher in the classroom activities. The competency based instructional modules contains the following elements.

1. **Area:** It mentions the area of accountancy with which the module deals.
2. **Competency:** Every module is designed on the basis of one or more competency that the learners has to master.

**3. Objectives:** Every module contains objectives. The objectives state the targeted abilities that the students have to master on completion of the module. These objectives together constitute to mastery of the specified competency.

**4. Introduction:** The introduction provides a platform for further learning. It link with the present area and competencies with the relevant prerequisite wherever necessary.

**5. Activities:** Every module provide required of activities so as to facilitate the mastery of the competencies by the learners. The learning experiences are provided in the form of activities. The situation provided in the module resembles the real job contexts. So the learners get a realistic view about the real job tasks.

**6. Worksheets:** Along with activity, required worksheets will be supplied to the learners. It will help them to practice the skill and will save the time by eliminating unnecessary and unimportant tasks.

**7. Formative Evaluation:** It helps the learner to introspect into hi/her own competency. No separate formative evaluation is provided as the activities provided themselves will serve the purpose.

#### **4.2.3. Entry Behaviour for Learning**

The first unit of the accountancy curriculum of the higher secondary course gives the essential pre-requisite for mastering the competencies included in the areas selected for the preparation of modules. It is considered that the students of the XI class would learn the first unit in the first term of the course.

Hence, further instruction in this area has been avoided. The pre-requisite test has been administered before starting the competency based instruction.

#### **4.2.4. Using the Competency Based Instructional Modules**

Before beginning the competency based instruction with the module the teacher has to discuss the nature of the learning. The following is the practice of instruction with the competency based instructional modules.

- i. The competencies and performance objectives are discussing and explaining in the class.
- ii. Learners sit in small groups (groups of 4 to 6 is preferred)
- iii. Learners go through the competency based instructional modules
- iv. Where ever there has a topic for discussion learners engage in the discussion (It is the duty of the teacher to supervise, direct and pace the discussion)
- v. Activities are to be performed individually (Teachers has to supply the required materials to carry out the activities).
- vi. Evaluation of the activities performed by the learners and giving directions required to master the competencies.
- vii. On satisfactory completion of an activity the learners can move to the next.

The competency based instructional modules in accountancy was prepared in English since it is the medium of instruction at higher secondary level. Fourteen modules were developed covering the selected areas and compiled to a single booklet. The worksheets are separately provided to facilitate for

evaluation and record keeping. The worksheets constitute the evaluation portfolio for each learner. The instructional modules and worksheets are given as appendix I. They are briefly described below.

*Module I* deal with the competency ‘*Develop awareness about the double entry system of Accountancy*’. This module will enable the learners (i) to describe the double entry system of accountancy (ii) to identify the double aspects of each transaction (iii) to develop the principles of double entry and (iv) to justify the practice of double entry system of accountancy.

*Module II* presents the competency ‘*To formulate the rules of debit and credit*’. It will equip the learners (i) to describe the effect of transactions on various accounts (ii) to develop the rules of debit and credit for different types of accounts and (iii) to apply the rules to find the debit and credit aspects of transactions.

*Module III* aims at developing the accounting equations. Formulation of accounting equation is of crucial importance in learning accountancy. This module provided activities to develop insights into the concept of accounting equation and to identify the equation by taking into account each transaction.

*Module IV* would develop expertise in the preparation of journal. Transactions that usually takes place in business organisations have been provided so that the learners get into a real job contexts.

*Module V* is concerned with developing the competency of preparing accounts. The subcompetencies involve (i) using correct

format for preparing accounts (ii) to post entries in appropriate accounts (iii) to balance accounts accurately (iv) to interpret account balances and (v) to describe the process of preparing accounts.

*Module VI* aims at developing expertise in the preparation of cash book. It includes many subcompetencies like recording entries into cash book, posting from cash book, balancing etc.

*Module VII and VIII* deals with the preparation of purchases day book and purchases return book.

*Module IX* concerned with the preparation of sales book and sales return book.

*Module X* is concerned with the preparation of Trial balance. This module doesn't deals with the rectification of errors in details.

*Module XI* deals with the theoretical aspects of financial statements and aims at developing related cognitive competencies.

*Module XII, XIII, XIV and XV* deals with the various financial statements like Trading account, Profit and Loss Account and Balance Sheet respectively.

A sample of the competency based instructional module is given in the next pages.

## **MODULE No. 5**

**Area : Origin and Recording of Transactions**

**Competency : To Prepare Ledger Accounts**

### **Objectives:**

This module will help you to gain expertise in the preparation of accounts. On completion of this module you will be able to:

- To use correct format for preparing accounts
- To post entries in appropriate accounts
- To balance accounts accurately
- To interpret account balances
- To describe the process of preparing accounts

### **Introduction**

You have learnt that journal is the day book in which transactions are recorded in the chronological order, i.e., in the order of their occurrence. Is it possible to get complete information regarding a particular item from the journal very easily, like the amount payable to suppliers or amount receivable

from customers, the total amount spend on various item etc. If you want to know the exact amount payable to a supplier you have to go through the entire pages of the journal. It is not an easy task. In order to avoid this difficulty, all transactions affecting a particular item are recorded in one place. Such a book wherein transactions of similar nature are grouped together in one place is called Ledger.

In the journal all transactions are recorded in the order of happening. But transactions are classified i.e., similar transactions are grouped together and recorded in the ledger.

### **Ledger**

Ledger is a book where transactions of similar nature are grouped together in one place in the form of accounts

### **Activity 5.1**

(Materials Required: Worksheet No.1)

Discuss the uses of ledger and record your findings in the worksheet provided.

The ledger consists of a number of accounts. How these accounts look like? An account has two sides. – one debit side and one credit side. In each sides there will be columns to record date of transaction, particulars of the transaction, JF, amount etc.

### **Activity 5.2**

(Materials Required: Worksheet No.1)

Design a format for ledger account. Your teacher will help you.

You have learnt to draw ledger accounts. Every journal entry will have to be transferred to the respective accounts in the ledger. The process of recording information given in the journal to the ledger is termed as posting.

### **Posting**

The process of transferring the entries from the journal to the ledger is called posting

Now let us learn how to make posting from journal to ledger. Consider the following transaction.

Purchased machinery for Rs. 20,000 on 1<sup>st</sup> January, 2004.

As you know in this transaction the two aspects are 'machinery' and 'cash'. Thus the journal entry will be:

2003 January, 1.	Machinery account	Dr.	25,000	
	Cash account			20,000

(Being Machinery purchased)

Here we have to open two accounts. i.e. Machinery Accounts and Cash account. In the above journal entry the debit aspect is machinery. So the posting is to be done on the debit side of machinery account. This is done by writing the name of the other aspect (i.e., Cash account) in the particulars column. Similarly, cash account is the credit aspect in this transaction. So posting should do on the credit side of the cash account.

### **Activity 5.3**

(Materials Required: Worksheet No.1)

Draw accounts and post the above journal entry in the machinery account and cash account.

*We have to remember the following points while recording transaction in the ledger accounts.*

- Take the debit and credit aspect of the transaction and open necessary accounts
- All transactions must be posted in the order of dates
- The date of the transaction must be entered in the date column
- For debit aspect of the journal entry, posting should be made on the debit side. For credit aspect of the entry posting is done on the credit side of the account
- While posting on the debit side of an account in the particulars column, we shall write the name of the account which has been credited in the journal. Similarly, while posting on the credit side of an account, we shall write the name of the account which has been debited in the journal.
- In the journal folio column, we shall mention the page number of the journal where concerned journal entry appears.
- In the amount column in the credit side, the amount of the debit account is written and in the credit side of the amount of the credit account is written.

While posting, it should be born in mind that in no case the name of the account should appear as an entry in that account. But the name of the account in which the corresponding entries appears should be inserted.

#### **Activity 5.4**

(Materials Required: Worksheet No.4)

Following are the some entries taken from the journal Mr. Kumar. Post the entries of the following journal to the respective accounts.

Date	Particulars	LD	Debit Rs.	Credit Rs.
2004 Jan. 1	Cash Account Dr. Kumars' Capital Account (Commenced business with cash)		1,50,000	1,50,000
2004 Jan 10	Purchases Account Dr. Cash account (Purchased goods for cash)		5,000	5,000

Jan 15	Wages Account	Dr.	1,000	1,000
	Cash account (Paid wages)			
Jan 30	Suresh's Account	Dr.	4,000	4,000
	Sales account (goods Sold on Credit)			

***Hint for preparing ledger accounts.***

In the first entry 'Cash Account' is the debit aspect. So we have to post in the debit side of the cash account by writing 'Kumar's Capital Accounts' in the particulars column. The amount shown against cash account in the journal is entered in the amount column. Since the credit aspect is 'Kumar's Capital Account', we have to post on the credit side of Kumar's Capital Account by writing "Cash Account" in the particulars column and amount shown against Kumar's capital account in the journal is entered in the amount column.

In the same way post other journal entries also.

**Activity 5.5**

(Materials Required: Worksheet No.2 & 3)

Journalise the following transactions and post them into respective accounts.

Mr. Sanker started business on March 1, 2004 with a capital of Rs 2,50,000. His transactions for the month are given below.

- 2003 March 1      Opened a bank account with Rs 1,50,000  
                   2      Purchased machinery for Rs 50,000  
                   3      Cash purchases Rs 60000  
                   4      Bought furniture and paid by cheque Rs 8000  
                   7      Purchased goods from Hari&Sons Rs 8000 on credit  
                   10     Sold goods to Mohan Rs 12000

- 
- 12 Purchased motor van Rs 70000 paid by cheque
  - 15 Received from Mohan cash Rs 8000
  - 17 Withdrew cash from bank Rs 5000
  - 20 Paid Hari&Sons Rs 2000
  - 21 Paid rent Rs 1000
  - 22 Received interest Rs 500
  - 24 Sold goods to Jeevan Rs 8000 on credit
  - 26 Paid wages Rs 5000
  - 27 Received commission Rs 750
  - 28 Paid salaries Rs 2500
  - 30 Paid insurance Rs 500
  - 31 Recieved from Jeevan cheque for Rs 5000

Now you are familiar with the preparation of Ledger accounts. How can we know the net effect of various transactions in a particular account? For this purpose we have to work out the balance of the account. Balance is the difference between the total of debit and credit side of an account.

If the debit side of an account is more than its credit side, it indicates a debit balance. If the credit side of an account is more than its debit side it indicate a credit balance.

### **Balancing**

The process of finding out the balance of ledger accounts is known as balancing.

#### ***Steps in the process of balancing***

1. Total the two sides of an account and put the highest amount as both sides.
2. Find out the difference between the highest total and lowest total and put the difference in the lower sided by writing 'balance c/d' in the particulars column.
3. The closing balance of one period is the opening balance for the next period. The opening balance is shown on the next date in the account by

writing 'balance b/d' on the opposite side of where closing balance is shown.

Examine the cash A/c given below.

Dr. Anil's Cash Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003				2003			
Apr1	Anil's capital		10000	Apr2	Bank A/c		5000
5	Sales A/c		2000	10	Purchases A/c		3000
			12000	30	Balance C/d		
			<u>12000</u>				<u>12000</u>

Here the total of the debit side is higher, so that amount is entered in both the column.

Now we have to find out the difference and put the difference on the space provided. The difference is Rs. 4000. So Rs. 4000 is the closing balance of cash account and it shall be brought down on the next date. It is shown below.

Dr. Cash Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003				2003			
Apr 1	Anil's capital		10000	Apr 2	Bank A/c		5000
5	Sales A/c		2000	10	Purchases A/c		3000
			12000	30	Balance c/d		4000
			<u>12000</u>				<u>12000</u>
			<u>4000</u>				

May1	Balance b/d						
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**Activity 5.6**

The following are some of the accounts kept in the books of Mr. Anil.  
Help him to know the outstanding balance in each account.

Dr.		Anil's Capital Account				Cr.	
Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr 1 5	Cash A/c Bank A/c		100000 20000	2003 Apr30	Balance c/d		<u>120000</u>
			<u>120000</u>				
May 1	Balance b/d						

Dr.		Furniture Account				Cr.	
Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr 1 5	Cash A/c Bank A/c		10000 5000	2003 Apr30	Balance c/d		
			<u>          </u>				<u>          </u>
May 1	Balance b/d						

Dr.		Salary Account				Cr.	
Date	Particulars	JF	Amount	Date	Particulars	JF	Amount

\_\_\_\_\_

\_\_\_\_\_

2003 Apr30	Bank A/c		10000	2003 Apr30	Balance c/d		
May1	Balance b/d						

Dr. Kumar's Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr10	Cash A/c		10000	2003 Apr 1	Purchases		25000
25	Bank A/c		2000	10	Purchases		15000
30	Balance c/d						
				May1	Balance b/d		

Dr. Sales Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr30				2003 Apr 1	Cash		45000
				10	Suresh's A/c		5000
				May1			

Dr. Suresh's Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr10	Sales a/c		5000	2003 Apr			
			2000				

**Activity 5.7**

(Materials Required: Worksheet No 2 & 3)

M/s. Kumar & Sons started business on 1 may 2003 with Rs 200000. Their transactions for the month are given below. Record them into the journal and post them into respective accounts and find the balance of each account.

1. Opened a bank Account with Rs 50000
2. Purchased goods from Prakash Rs 20000
4. Sold goods Rs 15000
5. Paid wages Rs 500
8. Purchased goods for Rs 40000
9. Purchased furniture Rs 10000
11. Sold goods to Gopal Rs 5000
13. Commission received Rs 1000
15. Paid to Prakash Rs 5000
18. Received from Gopal cheque for Rs 4000
20. Cash sales Rs 8000
21. Purchased goods from Prakash Rs 8000
22. Cash sales Rs 3000
25. Rent paid Rs 1000
30. Salary paid Rs 4500
30. Cash sales Rs 3500

***Points to Remember***

- ✓ Ledger is a book where transactions of similar nature are grouped together in one place in the form of accounts.
- ✓ The process of transferring the entries from the journal to the ledger is called posting.

- ✓ The process of finding out the balance of ledger accounts is known as balancing

### ***Formative Evaluation***

1. What is an account?
2. Draw a format of account.
3. Describe the process of balancing accounts.

## **4.3. EXPERIMENTATION AND DATA COLLECTION**

The main purpose of the study was to compare the effectiveness of competency based instruction over the conventional method of teaching. Experimentation is the name given to the type of educational research in which the investigator controls the educative factors to which groups of learners are subjected during the period of enquiry. In experimental research, the entry behaviour of the subjects is measured and the treatment is given. The comparison of the pre and post test administration is made and if any difference, is attributed to the experiment or treatment. So the experimental method, the most exacting and difficult of all methods and also the most important from the strictly scientific point of view was adopted to compare the effectiveness of competency based instruction.

### **4.3.1. Study Design**

The present study is designed as developmental cum experimental study. The accountancy competencies to be mastered by the students were identified and modules for imparting competency based instruction were developed

before starting the treatment. For the purpose of verifying the effectiveness of Competency Based Instruction, 'Non-randomised Control Group, Pretest Posttest' design was used. Because in a school setting, it is not possible to upset the schedule to gather subjects for obtaining a sufficiently large sample or to recognise classes in order to employ randomisation procedures for setting equivalent control and experimental groups.

So the preassembled groups are selected and are administered pretest. The pretest scores were analysed to show that the means of the groups do not differ significantly. The assignment of groups into control and experimental were done randomly. Hence there are two groups i.e., an experimental group and a control group. The experimental group has been treated with Competency Based Instruction and the control group has been treated with Conventional Method of Teaching. The research design of the experimental phases has been given in the figure 4.1.

### **4.3.2. Variables of the Study**

The study involves the following variables.

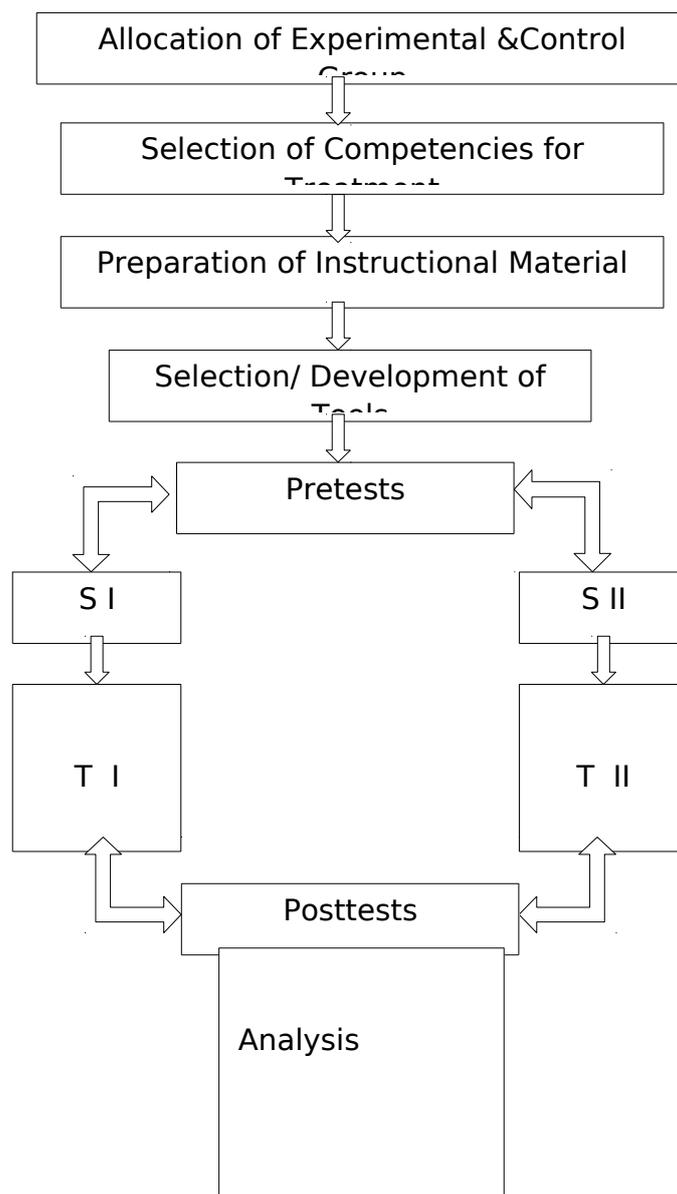
#### **4.3.2.1. Independent Variables**

Two sets of variables based on methods and paradigms of teaching were selected as independent variables for the present study. The instructional strategies selected are:

- a) *Competency Based Instruction (CBI) and*

b) *Conventional Method of Teaching (CMT)*

**Fig. 4.1**  
**The Experimental Procedure**



#### **4.3.2.2. Dependent Variables**

The focus of the present study was to explore how effective the competency based instruction in the mastery of competencies in accountancy. In addition to the above focus the investigation is designed to verify the effect of competency based instruction on the attitude of students towards accountancy and on the self esteem of the students. Thus the dependent variables considered in the present study are:

- i. Mastery level learning in Accounting*
- ii. Attitude of students towards Accounting*
- iii. Self esteem of the Students*

#### **4.3.2.3. Control Variable**

Variable controlled in the present study is the *entry level competency of the students*.

#### **4.3.3. Sample Design**

The population of the present study covers the higher secondary school students who study accountancy as one of their optional subjects. Care had been taken to ensure that the samples selected were equivalent in many respects. It was decided to select co-educational schools for experimentation. It

was also ensured that almost equal number of boys and girls were included in the sample. The following factors were given due consideration while selecting the schools to conduct the study.

#### **4.3.3.1. Instructional Efficiency**

Instructional efficiency of the school was ascertained on the basis of the examination result of the previous four consecutive years in common Higher Secondary Examinations (2000-01 to 2003-04). Schools with above average instructional efficiency that is pass percentage of 80- 95 for the previous four consecutive years were included in the sample. A district of the Kerala state, namely Kozhikode district was selected using convenient sampling technique. From the selected district, based on the above criteria, four higher secondary schools were selected at random to carry out the study. The following factors were also considered for the selection of the schools.

#### **4.3.3.2. Type of Management of the Schools**

The type of management of the school is highly correlated with the facilities, instructional efficiency etc. Hence, only those schools of same type of management i.e., government schools were selected as sample to carryout the present study.

#### **4.3.3.3. Locality of the Schools**

The location of the schools has an impact on the academic atmosphere and quality of the input in the form of socio economic status of the students, infrastructure facilities etc. So while selecting the schools for conducting the

study the location of the school were given due consideration. Only those schools situated in semi-urban area were selected as sample for the purpose of the present study.

#### 4.3.3.4. Allocation of Experimental Group and Control Group

Random assignment of subjects in Experimental Groups and Control Group will not be possible in an organised set up of the schools. Because of practical reasons, one commerce batch of the selected schools with an intake of minimum sixty students is considered as a unit. Thus there were altogether four such units. Schools were randomly assigned to experimental group and control group respectively. Number of students in each group is shown in the Table 4.1.

**Table 4.1**

#### **Break-Up of Sample**

Sex \ Group	Experimental Group	Control Group	Total
Boys	58	57	<b>115</b>
Girls	64	61	<b>125</b>
Total	<b>122</b>	<b>118</b>	<b>240</b>

#### 4.3.3.5. Matching of the Experimental Group and Control Group

The selected classes for the experimental and control groups have been matched each other on the basis of their performance in the prerequisite test in accountancy. The scores obtained by the experimental and control groups in the prerequisite test in accountancy are given in the Table 4.2. It shows that the entry level competency among the students in the experimental and control groups are almost equal. There is no much gender difference in respect of the scores in the prerequisite test in accountancy both in the experimental and control groups.

Table 4.2  
**Scores in the Prerequisite Test**

Group Sex	Experimental Group	Control Group
Boys	26.26	27.04
Girls	25.94	26.18
Total	<b>25.54</b>	<b>26.36</b>

#### **4.3.4. Tools Used for Experiments and Data Collection**

The following tools have been used for the experiment and data collection in the present study.

- (i) Prerequisite Test (Entry Behaviour Test) in Accountancy
- (ii) Competency Based Instructional Modules (Developed by the Investigator)
- (iii) Learning activities for Conventional Method of Teaching (Adopted from Higher Secondary School teachers' Sourcebook published by SCERT, Kerala)

- (iv) Criterion Referenced Achievement Test in Accountancy (Developed by the Investigator)
- (v) Self Esteem Inventory
- (vi) Accountancy Attitude Scale (Developed by the Investigator)
- (vii) Observation Schedule on Identified Competencies
- (viii) Observation Schedule on Competency Based Instructional Modules

Brief descriptions of the tools used in the present study are given below.

#### **4.3.4.1. Prerequisite test in Accountancy (Entry Behaviour Test)**

In order to assess the achievement of the students before the experiment and to determine whether remedial instruction is necessary, a prerequisite test (pre-achievement test or entry behaviour test) has been administered to both the control group and the experimental group. The prerequisites required for learning the topics selected for the experimental treatment will be the basis of the test. The test will have developed by the investigator. The test will ensure whether the required prerequisites are available with the students. The test will consist of items to measure the understanding of the learners in the basic terminology, basic concepts and fundamental principles of Accounting.

##### ***(i) Item to evaluate the understanding of basic terminology of accounting***

In the entry behaviour test, items are incorporated to evaluate the understanding of the students in the basic terminology of Accounting. In order to learn any discipline the learners should be thorough with the basic

terminology used in that discipline. In Accounting there are some terms, which have a particular meaning. So it is provided test items, which will evaluate the proficiency of the students in the basic terminology of Accounting. An illustrative item is given below.

***(ii) Item to evaluate the insight into the basic principles of accounting***

In any subject there will be some principles, which are fundamental in nature. Any one who wants to master the subject should acquire deep insight into those principles. So it is decided to include adequate number of test items to evaluate the insight of the students in those principles. An example for such items is given below.

***(iii) Item to evaluate the insight into the basic concepts in accounting***

In Accounting there are some basic concepts the mastery of which is a prerequisite for learning the subject. As these concepts are the foundation of the subject, items are included in the test to evaluate whether the students has the gestalt view of the basic concepts in Accounting.

The prerequisite test in accountancy and the response sheet are given in the appendices III and IV respectively.

#### **4.3.4.2. Competency Based Instructional Modules**

The purpose of the present study was to find out the effectiveness of Competency Based Instruction over Conventional Method of Teaching accountancy at higher secondary level. For this the investigator conducted an experimental study and hence two groups, Control group and Experimental

group have involved in the present study. These two groups were treated by two different strategies of instruction i.e., Competency Based Instruction for Experimental group and Conventional Method of Teaching for the Control group. For imparting competency based instruction to the experimental group, modules have been prepared by the investigator. To impart instruction for the selected competencies fourteen modules have been developed. The procedure adopted for the preparation of the modules and other details have been already described in this chapter. The competency based instructional modules have been given as appendix I.

#### **4.3.4.3. Learning activities for Conventional Method of Teaching**

As the major purpose of the study is to verify the effectiveness of Competency Based Instruction, the control group were treated with Conventional Method of Teaching, while the experimental group received the Competency Based Instruction. For instructing the control group, learning activities prescribed in the higher secondary school teachers' hand book for the relevant units were adopted. The details of the learning activities provided to the control group have been provided in the appendix II.

#### **4.3.4.4. Criterion Referenced Test in Accountancy**

Criterion referenced test has been developed to measure the level of mastery of competencies by the students. The Criterion Referenced Testing compares the level of a student's performance against an identified standard or criterion. It identifies what a learner can do or knows or has attained or is competent in. The focus is on whether an individual is able to perform at an

acceptable standard. Criterion Referenced Testing provides information about the specific knowledge and abilities of learners through their performance in terms of what they know or can do, without reference to the performance of others (Brown, 1981).

For measuring the mastery of the students of both the control group and the experimental group a Criterion Referenced Achievement Test in Accounting has been developed. Because it will facilitate the interpretation of students performance in relation to a set of well defined competencies. The result of the Criterion Referenced Test indicates as precisely as possible whether the learners have achieved the goal specified for the learning task. The test will measure the level of learning of the students in each of the competencies. This test was used as pretest and posttest. The test items were developed based on the design and blue print giving proper weightage to different domains and type competencies. The validity and reliability of the test were also found out. The details are given in the following paragraphs.

#### **4.3.4.4.1. Development of Criterion Referenced Test in Accountancy**

For the development of Criterion Referenced Test in Accounting the following steps have been followed as have been proposed by Hambleton (1982).

##### **1. Preliminary considerations**

Deciding the purpose of the test and for whom the test is intended are the first things in the development of criterion referenced test. The present test is to assess the mastery of competencies in accountancy by higher secondary school

students. This step in constructing the criterion referenced test also specify the behaviour domain that the test item will measure and to which all individual's performance would be referenced.

All tests have to contain specifications describing the broad range of content area, skill, competencies etc. to be assessed. It reduce the uncertainty of the test item writer in creating comparable items, that is, item which represent the same universe of content, skill and competencies (Baker, 1985). Domain specification consists of: (i) Specifying content area and (ii) Specifying skills, competencies to be developed or to be mastered through the content area. It was decided to construct the test of 100 marks with 2 hours duration. The weightage given to each domain (area) and different competencies are given below. Based on these considerations a blue print of the test has also been developed and the same is presented in the next page

## **2. Construction of Test Items**

Items were generated as per the blue print. More than required numbers of item were developed so as to select the best items for the final test. Choice of the item depends up on the judgement of competent persons as to its suitability for the test. In the present study experts in the field of accountancy and education were consulted and their opinions were sought while developing the test items. Based on the expert opinion, a rough draft of the tool was developed. The draft test consists of 60 multiple choice items and 10 descriptive items. Items were again presented to experts for getting their suggestions for

improvements. The items were restructured and revised on the basis of their suggestions.

### Weightage to Types of Competencies

Sl No	Type of Competencies	Area			Mark
		II	III	IV	
1	Cognition	21	2	7	30
2	Performance	35	5	30	70
Total		56	7	37	100

### Weightage to Area (Domains)

Area No	Competencies	Marks	Total
II	2.1. Awareness about the Double Entry System of Accountancy	2	56
	2.2. Formulating the Rules Of Debit And Credit	5	
	2.3. Formulating Accounting Equations	1	
	2.4. Preparation of Journal	9	
	2.5. Preparation of Accounts	16	
	2.6. Preparation of Cash Book	15	
	2.7. Preparation of Purchases Day Book	3	

	2.8. Preparation of Purchases Return Book	1	
	2.9. Preparation of Sales Day Book	3	
	2.10. Preparation of Sales Return Book	1	
III	3.1. Preparation of Trail Balance	7	7
IV	4.1. Insights into the Purposes of Financial Statement	1	37
	4.2. Preparation of Trading Account	11	
	4.3. Preparation of Profit and Loss Account	10	
	4.4. Preparation of Balance Sheet	15	
<b>Total</b>		<b>100</b>	<b>100</b>

### Blue Print

Area No	Type of competence	Cognition	Performance	Sub Total	Total
	Competencies				
II	2.1. Awareness about the double entry system of Accountancy	2(2)	-	2	56
	2.2. Formulating the rules of debit and credit	5(3)	-	5	
	2.3. Formulating Accounting equations	1(1)	-	1	
	2.4. Preparation of Journal	3(3)	6(1)	9	
	2.5. Preparation of Accounts	4(4)	12(1)*	16	
	2.6. Preparation of Cash Book	4(4)	11(2)	15	
	2.7. Preparation of Purchases Day Book	1(1)	2(1)*	3	
	2.8. Preparation of Purchases Return Book	-	1(1)*	1	
	2.9. Preparation of Sales Day Book	1(1)	2(1)*	3	
	2.10. Preparation of Sales Return Book	-	1(1)*	1	
III	3.1. Preparation of Trail Balance	2(2)	5(1)#	7	7

IV	4.1. Insights into the Purposes of Financial Statement	1(1)	-	1	37
	4.2. Preparation of Trading Account	1(1)	10(3)#	11	
	4.3. Preparation of Profit and Loss Account	2(1)	8(2) #	10	
	4.4. Preparation of Balance Sheet	3(3)	12(3)#	15	
<b>Total</b>		<b>30</b>	<b>70</b>	<b>100</b>	<b>100</b>

1. \* & # indicate the same question spread over different competencies.
2. Number outside bracket indicate the marks.

### 3. Tryout

Tryout helps to find out the flaws in the test. The pilot test was administered to a sample of 100 students of standard XI. Enough time were given so as to enable all the students to complete the test. The scoring of objective test items was done using window stencil method. The descriptive test items were evaluated by two teachers repeatedly in order to avoid subjectivity.

### 4. Item Analysis

It is the process of establishing stability of an item for inclusion in the final test. The quality of each item is ascertained by analysing two important characteristics of the item viz. (i) Difficulty index and (ii) Discriminating Power.

For the present study Kelly's method (Kelley, 1939) was used to calculate the difficulty index and discriminating power. Based on the score obtained, answer script were arranged in descending order or magnitude i.e. from highest to lowest. Then the first 27 and last 27 scripts were used for item analysis. The

difficult index and discriminating power were calculated using the following formulas.

$$\text{Difficulty index} = \frac{U + L}{2N}$$

$$\text{Discriminating Power} = \frac{U - L}{N}$$

Where,

U = the numbers of students passing in the upper group

L = the numbers of students passing in the lower group

N = the number of students in each group

Items having difficulty index between 0.25 and 0.75 and discriminating power above 0.25 were selected for the final test.

## 5. Analysis of Content Relevance

Messick (1975) has suggested not using the word content validity but content relevance or content representativeness. The content relevance has been assessed through logical review of the items by subject and evaluation experts. For this purpose the test items and detailed list of competencies were submitted to experts in the field of accountancy and evaluation for getting their remarks and rating of the items. The items which are rated as highly representative and capable of eliciting the targeted competencies were selected for the final test.

## **6. Preparation of the Final Test**

Out of the 70 test items of the draft test 27 multiple choice test items, 5 filling up type (based on calculations) and 5 descriptive items were selected for the final test based on the difficult index, discriminating power and content relevance of the items. The test consists of two sections. The objective test items were arranged in section A and the descriptive items were given in section B. The time limit for answering the test was fixed to be 2 hours. The final test was printed in booklet form with all necessary instructions. Separate answer sheets were printed for both the sections. Copies of the achievement test and response sheet are given as appendices V and VI.

## **7. Validity of the Test**

### ***i. Content Validity***

Experts suggest that content validity is a sufficient measure for criterion referenced test (Messick, 1975). Content validity is the logical relationship of the items to the pre-determined content area or criterion. In the present test content validity of the test items has been assured by selecting only those test items which are rated as having high relevance and object congruence by the experts in the logical reviewing process.

### ***ii. Empirical or Statistical Validity***

The empirical validity of the test was calculated by correlating the scores of the test with the marks obtained in the public examination (Model

examination). The correlation coefficient obtained is 0.89. The obtained value shows that the test has good empirical validity.

### **8. Reliability of the Test**

The reliability of the test has been determined by the split-half method. In this method the score obtained for each individual for the test are divided into two groups by pooling into odd number items and even number items. For estimating the reliability 100 answer scripts were selected randomly and using the odd and even number item scores the product-moment coefficient of correlation was calculated. The coefficient of correlation was found to be 0.94 which is a good indicative of the high reliability of the test.

### **9. Selection of Standard**

The setting of performance standard is necessary to assign the students into 'mastery' 'nonmastery' status. For this purpose judgemental method as suggested by Berk (1976) has been employed in the present study. On the basis of the judgements of the experts it is decided to fix 80% as the cut off score to assign students as 'master'.

#### **4.3.4.5. Self Esteem Inventory**

Self-esteem refers to the self evaluation made by an individual. It is one's attitude towards one self along a positive or negative dimension.

The self-esteem of the students has been measured using a standardised test, which is known as the self-esteem inventory, developed by Thomas and

Sananda Raj (1985) of Kerala University. The inventory is constructed making use of the self-report method.

All the items are in the form of self evaluative and/or descriptive statements. The items are expected to tap self-evaluation of the subject from a variety of behavioural domains including academic, social, physical and emotional aspects. The inventory measures only one variable, namely self-esteem.

The inventory consisted of 20 items with alternative responses. There are five response categories, viz., A, B, C, D and E. A denotes 'strongly agree', B denotes 'agree', 'C' denotes 'undecided', D denotes 'disagree' and 'E' denotes 'strongly disagree'. This is a self report inventory for adolescence.

The reliability of the scale has reassessed through re-test method and has found highly reliable. The test re-test reliability of the self esteem inventory is 0.89. The inventory also possesses high content validity. A copy of the self esteem inventory is given as appendix VIII.

#### **4.3.4.6. Accountancy Attitude Scale**

Attitude means a general disposition to regard something in a positive or negative way. Gagne (1985) defines attitudes as internal states that influence an individual's choice of personal action. According to Gagne, an attitude consists of three elements.

1. An affective component that includes the positive and negative feelings a person has.
2. A behavioural component made up of behaviours or acts that result from a person's feeling and knowledge.
3. A cognitive component consisting of a person's knowledge about how to do something and the rewards or consequences for doing it.

In the context of competency based instruction, competency consists of three elements viz. knowledge, skills and attitude. As it is difficult to assess the changes in the attitude of the students through the criterion referenced test in accountancy, a separate attitude scale has been developed by the investigator.

The Accountancy Attitude Scale is a 20-item instrument that is designed to measure students' attitudes toward accountancy; in particular, it is designed to measure their feelings of like or dislike about accountancy. Fourteen of the items use a Likert-type scale (five-point agree-disagree scale) and six items use a semantic differential scale (five-point bipolar adjective scale). The instrument was developed on the assumption that an important consequence of instruction is a change in the student's attitude toward the subject.

The construction of the attitude scale consists of the following three main phases.

- i. *Pre-Pilot Phase*
- ii. *Pilot Phase*

*iii. Finalisation Phase***4.3.4.6.1. Pre-Pilot Phase**

The pre-pilot stage is concerned with item pooling. It consists of (i) Item coverage (ii) Sources of items and (iii) Laying down criteria for items selection.

**1. Item Coverage**

Regarding the coverage of the items, the items focused on the learners' feelings of like or dislike towards the subject accountancy. Attention is given to cover all elements of attitudes while pooling the items.

**2. Sources of Items**

Preliminary item pooling was done by drawing items from the following sources.

- Discussion with experienced commerce teachers
- Consultation with educational experts
- Discussion with students
- Review of thematic and research works

By careful analysis of the above sources, statements were gathered. Then a total of thirty Likert-type items and ten semantic differential items were pooled during this stage.

**3. Laying Down Criteria for Items Selection**

The collected items were not directly administered to the subjects. But they were subject to screening. The following criteria were considered while screening and there by some statements were added, excluded and modified.

- The language of the statement should be simple, clear and unambiguous.
  - The rater should clearly know the method of responding each item.
  - Each and every statement should be short.
  - Double negative sentences should be avoided.
  - The statements that are likely to be endorsed by almost anyone or no one should be avoided.
- The compound and complex sentences should be avoided.

#### **4.3.4.6.2. Pilot Study Phase**

Once the statements are collected, the next step is pilot study. The pilot study is concerned with refining the items collected during the pre-pilot stage. This refinement of the items was done on the basis of the judgment analysis. Judgement analysis implies eliciting the opinion of the experts in the area of study regarding the suitability and objectivity of the items poled. All the forty items (thirty Likert-type items and ten semantic differential items) gathered during the pre-pilot stage were sent to jury opinion regarding their suitability, objectivity and clarity. A jury council consisting of five university faculty members belonging to education and psychology departments and ten commerce teachers working in higher secondary schools was constituted for this purpose. On the basis of the judgement of the jury council, some items were modified, some items were restructured and some items were

eliminated. At last a total of twenty items (Fourteen Likert-type items and six semantic differential items) were retained in the Accountancy Attitude Scale.

#### **4.3.4.6.3. Finalisation Stage**

This stage is concerned with the random distribution of the final items in the tool. The items were randomly distributed in the Accountancy Attitude Scale. A copy of the final version of the Accountancy Attitude Scale is presented in the appendix VII.

#### **4.3.4.6.4. Scoring Procedure**

The Accountancy Attitude Scale consists of two sections. The section A is a Likert type agree-disagree scale having five anchoring points. Section B is a semantic differential scale (five-point bipolar adjective scale). The scoring of positive items in the section A of the Accountancy Attitude Scale is done as follows:

A score of 5 is assigned to the response ‘Strongly Agree’

A score of 4 is assigned to the response ‘Agree’

A score of 3 is assigned to the response ‘Undecided’

A score of 2 is assigned to the response ‘Disagree’ and

A score of 1 is assigned to the response ‘Strongly Disagree’

The scores were in the reverse order for negative items.

A score weightage of 5, 4, 3, 2 or 1 is given to the rating A, B, C, D or E respectively for the each item in the B section of the Accountancy Attitude Scale. The scores for the separate items are thus summed to obtain the attitude score of the individual learners. The maximum score obtainable is 100 and minimum is 20.

#### **4.3.4.6.5. Validity of the Accountancy Attitude Scale**

The content validity of the Accountancy Attitude Scale was established by the investigator. The content validity is a type of test validity in which the content of the test is judged to be representative of a larger domain of content. The content validity can be assured by the systematic procedure of test construction. Nunnally (1978) observe that rather than testing the validity of a test after construction, the researcher should ensure validity by the plan and procedure of the test construction. There are two major standards for ensuring content validity. They are; (i) representative collection of item and (ii) sensible method of test construction. The procedure for the development of the Accountancy Attitude Scale is diagrammatically presented in the Fig. 4.1. The characteristics of attitude were identified through the discussion with experts and by reviewing the related literature. The next step was items pooling from various sources like teachers, students and literature. The criteria for the selection of item pooling were carefully followed. Then the pilot study was conducted by obtaining the suggestion of the jury council. Thus the tool was properly structured. Therefore, the Accountancy Attitude

Scale fulfil the standard suggested by Nunnally (1978). Hence it is concluded that the Accountancy Attitude Scale possesses high content validity.

#### 4.3.4.6.6. Reliability of the Accountancy Attitude Scale

The Reliability of the Accountancy Attitude Scale has been established by using Kuder-Richerdson Formula-20 and with test re-test method. The Kuder-Richerdson Formula-20 is one of the ways of establishing internal consistency. Ferguson and Takane (1989) observe that the KR<sub>-20</sub> formula may be applied to test comprising items which elicit more than two categories of responses. Personality and interest inventories and attitude scales frequently permit three or more response categories.

$$KR_{-20} = \frac{n}{n - 1} \left[ \frac{\sigma^2_t - \sum S^2}{\sigma^2_{t-}} \right]$$

Where, n = number of items in the text

$\sigma^2_t$  = Standard deviation of the total test scores

$\sum S^2$  = Total sum of variance of the individual items

The tool has been administered to a sample of 120 subjects and the 'r' worked out to be 0.88 for the Likert-type scale, and 0.86 for the semantic differential scale.

The test re-test method is one of the ways of establishing external consistency. For the purpose of ascertaining the test-retest reliability, the attitude scale was administered twice to a sample of 120 students. The test-

retest reliability was also high – correlations were 0.92 for the Likert-type scale, and 0.86 for the semantic differential scale. This indicates the high reliability of the Accountancy Attitude Scale.

The format of the Accountancy Attitude Scale and sample items are shown below.

### Format of the Accountancy Attitude Scale

#### Section A

SI No.	Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
4	Accountancy is fascinating and fun					
9	I approach accountancy with a feeling of hesitation					

#### Section B

Accountancy is:

5	Good	A	B	C	D	E	Bad
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The final form of the Accountancy Attitude Scale is presented in the appendix VII.

#### 4.3.4.7. Observation Schedule on Identified Competencies

In order to collect the observation regarding the quality of competency statements an observation schedule has been developed by the investigator. The details of the schedule have been already described in this chapter.

#### **4.3.4.8. Observation Schedule on Competency Based Instructional Modules**

To validate the Competency Based Instructional Modules, an observation schedule has been developed by the investigator with the help of his supervising teacher. The purpose of the observation schedule was to collect the observation of the teachers regarding the reliability of the Competency Based Instructional Modules developed by the investigator. A copy of the schedule has been given as appendix X.

#### **4.3.5. Experimental Procedure**

The experimental procedure that has been followed in the present study is described below.

##### **4.3.5.1. Identifying the Competencies**

The identification of competencies that should be mastered by the students in accountancy at higher secondary level is the first step of the study. The procedure adopted has already been described in this chapter as section 3.1.

##### **4.3.5.2. Measuring the Entry Behaviour of the Students**

Entry behaviour refers to the achievement of the students before the instruction. For measuring the entry behaviour of the students of both

experimental and control group the pre-requisite test will be administered to them before the treatment. It will diagnose the problems of the students with the pre-requisite. Necessary remedial measures will be provided to ensure the required pre-requisite.

#### **4.3.5.3. Preparing of CBI Modules**

For giving treatment to the experimental group competency based instructional modules were prepared. The detailed description adopted for the preparation of the modules has been given in this chapter as section 3.2.

#### **4.3.5.4. Administration of the Pre-Tests**

Pre-tests were administered both to the experimental group and control group. It refers to the tests administered to the subjects before the treatment. In the present study Criterion-Referenced Test in Accountancy, Self-Esteem Inventory and Accountancy Attitude Scale were administered to the students.

#### **4.3.5.5. Execution of the Experiment**

After the administration of the pre-tests, the experimental group have the experimental treatment. That is the experimental group were given competency based instruction and the control group received the conventional type of instruction.

#### **4.3.5.6. Administration the Post-Tests**

After the completion of the treatment the post-tests were administered on the subjects to facilitate comparison. Criterion-Referenced Test in Accountancy, Self-Esteem Inventory and Accountancy Attitude Scale were

administered to the students of both the control group and experimental group after the completion of the treatment.

#### **4.3.5.7. Measuring the Effectiveness of the Treatment**

The last step in the experimental procedure was to measure the effectiveness of instruction on the selected variables. The effectiveness of instruction on the selected variables has been measured by comparing the scores of the pre-tests and the post-tests. Necessary statistical techniques were adopted for the purpose of measuring the effectiveness. Symbolically, the conceptual design that used for measuring the effectiveness of the treatment is:

$$Esv = Lsvat - Lsvbt \quad \text{Where,}$$

$Esv$  = Effectiveness on the selected variable

$Lsvat$  = Level of the selected variable after the treatment and

$Lsvbt$  = level of the selected variable before the treatment

#### **4.3.6. Collection of Data**

The data required for the study has been collected with the tools designed for the specific purpose. Data regarding the mastery of the students in the competencies in accountancy, self esteem of the students and the attitude of the students towards accountancy have been collected. To facilitate comparison and verification pretest and posttest has been administered. In addition to this observation schedules have been administered to collect data

to validate the list of competencies in accountancy and the Competency Based Instructional modules.

#### **4.4. STATISTICAL TECHNIQUES USED**

The pretest scores and posttest scores of mastery of competencies in accountancy for the experimental and control groups were consolidated for statistical analysis along with the scores of attitude towards accountancy and self esteem. The collected data has been analysed both descriptively and inferentially with proper statistical techniques using computer.

##### **4.4.1. Preliminary Analysis**

The preliminary analysis of the data has been done with statistical techniques such as calculation of mean, median, range, percentages etc. averages etc.

##### **4.4.2. Inferential Analysis**

The inferential analysis of the data has been done with the help of the following statistical techniques.

- i. The test of significance of difference between mean, and
- ii. The test of significance of difference between percentages.



# **COMPETENCIES IN ACCOUNTANCY**

- 
- 4.1. Areas in Accountancy
  - 4.2. Competencies and Subcompetencies
  - 4.3. Analysis of Observations on the  
Identified Competencies
-

# **COMPETENCIES IN ACCOUNTANCY**

In order to ascertain the effectiveness of Competency Based Instruction, the investigator identified the competencies in accountancy to be mastered by students at higher secondary level. This chapter presents the identified competencies wh by the The major purpose of the study is to find out the effectiveness of competency based instruction in the attainment of mastery level learning in accountancy among higher secondary school students. As the details of the competencies to be mastered by the students in accountancy at higher secondary level are not readily available, the investigator has identified the same as per the procedure mentioned in the methodology chapter. The identified competencies have been analysed on the basis of the observations of the higher secondary school commerce teachers. This chapter describes the competencies and sub competencies to be mastered by the students in accountancy at higher secondary level. The result of the analysis has also been briefly presented in this chapter.

## **4.1. AREAS IN ACCOUNTANCY**

There are mainly eleven areas in accountancy that is to be learnt by students in accountancy at higher secondary level as per the syllabus prescribed. The areas in accountancy that are analysed for the present study are given in the table 5.1.

**Table 5.1**  
**Areas in Accountancy**

Area No	Area
1	Theory Base of Accounting
2	Origin and Recording of Transactions
3	Trail Balance and Errors
4	Financial Statements
5	Depreciation, Reserves and Provisions
6	Bills of Exchange
7	Accounting of Non-Trading Concerns
8	Accounting from Incomplete Records
9	Accounting for Partnership
10	Company Accounts
11	Analysis of Financial Statements

The investigator thoroughly analysed these areas as per the procedure described in the methodology chapter and identified 56 competencies and 226 subcompetencies from these areas. The competencies involve both cognitive

and performance competencies. The areas in accountancy and the number of competencies and subcompetencies to be mastered in each area have been presented in the table No. 5.2.

**Table 5.2****Number of Competencies and Sub competencies in Accountancy**

Area No	Area	No. of Competencies	No. of Sub Competencies
1	Theory Base of Accounting	6	20
2	Origin and Recording of Transactions	11	34
3	Trail Balance and Errors	2	12
4	Financial Statements	4	20
5	Depreciation, Reserves and Provisions	4	16
6	Bills of Exchange	2	11
7	Accounting of Non-Trading Concerns	2	14
8	Accounting from Incomplete Records	2	8
9	Accounting for Partnership	9	38
10	Company Accounts	7	22
11	Analysis of Financial Statements	7	31
<b>Total</b>		<b>56</b>	<b>226</b>

#### **4.1.1. Cognitive and Performance Competencies**

The above competencies involve both cognitive and performance competencies. These two types of competencies are interrelated. Related cognitive competencies are essential to acquire and execute the performance competencies. In many time classification of competencies into cognitive and performance is a difficult task. On the basis of the task involved the identified competencies have been categorised into cognitive and performance competencies. Among the identified competencies in accountancy that is to be mastered by students in accountancy 25 are cognitive competencies and 32 are performance competencies. The number of cognitive and performance competencies identified from each area of accountancy at higher secondary level has been given in table 5.2.

The first area in accountancy is the '*Theory Base of Accounting*'. It is related to the theoretical foundation of the subject accountancy. As accountancy as a subject of study is new to the students it is very important to develop a cognitive base among them. This area involves 6 competencies and 20 related subcompetencies. It include competencies like (i) Developing awareness about Accountancy (ii) Developing awareness about basic terms in Accountancy (iii) Distinguishing between Accountancy and Book keeping (iv) Gaining insight into the basic assumptions in Accountancy (v) Gaining insight into the basic principles of Accountancy and (vi) Developing

awareness in the modifying principles of Accountancy. All these are cognitive competencies.

**Table 5.3**

**Number of Cognitive and Performance Competencies**

Area No	No. of Cognitive Competencies	No. of Performance Competencies	Total
1	6	-	6
2	3	8	11
3	-	2	2
4	1	3	4
5	3	1	4
6	1	1	2
7	1	1	2
8	1	1	2
9	3	6	9
10	2	5	7
11	3	4	7
<b>Total</b>	<b>25</b>	<b>32</b>	<b>56</b>

The second area is '*Origin and Recording of Transactions*'. This area is concerned with the recording of transactions in the books of accounts. 11 competencies and 34 related subcompetencies were identified from this area. Out of these 11 competencies 3 are cognitive competencies and 8 are performance competences. The cognitive competencies are: (i) Developing awareness about the double entry system of Accountancy (ii) Formulating the rules of debit and credit and (iii) Formulating Accounting equations. The

performance competencies involve the gaining of expertise in the preparation of journal, accounts, cash book, purchases day book, sales book, purchases return book, sales return book bank reconciliation statements etc. These performance competencies are very basic to accountancy.

The third area is '*Trail Balance and Errors*'. Two performance competencies area identified from this area. They are (i) preparation of Trail Balance and (ii) adoption of appropriate procedure for rectifying errors. Altogether 12 related subcompetencies were identified from this area.

The fourth area is '*Financial Statements*'. This area is mainly concerned with the performance competencies like preparation of financial statements like Trading Account, Profit and Loss Account and Balance Sheet. Four competencies and 20 sub competencies were identified from this area that is to be mastered by the students at higher secondary level.

The fifth area, '*Depreciation, Reserves and Provisions*' involve four competencies and 16 related subcompetencies. Three competencies are cognitive and one is performance based in this area.

'*Bills of Exchange*' is the sixth area in accountancy at higher secondary level. Two competencies and 11 related subcompetencies were identified from this area. This area is concerned with the development of cognitive competency related to the concept of bills of exchange and performance competency related to the accounting of bills of exchange.

The seventh area is '*Accounting of Non-Trading Concerns*'. It includes two competencies and 16 subcompetencies. Students are expected to develop the conceptual awareness about the nature of non-trading concern (Cognitive competency) and expertise in the preparation of accounts of non-trading concern (performance competency).

The eighth area is '*Accounting from Incomplete Records*'. Two competencies and 8 related subcompetencies were identified from this area. Developing conceptual awareness about the single entry system of book keeping is the cognitive competency and the preparation of accounts from incomplete records is the performance competency identified from this area.

The ninth area in accountancy at higher secondary level is '*Accounting for Partnership*' which is concerned with the developing the competencies to prepare accounts of partnership firms. Nine competencies and 38 related subcompetencies were identified from this area. Out of the nine competencies three are cognitive competencies and six are performance competencies.

The tenth area is '*Company Accounts*' from which seven competencies and 22 related subcompetencies were identified. These involve two cognitive competencies and five performance competencies.

The eleventh area is '*Analysis of Financial Statements*'. Seven competencies and 31 related subcompetencies were identified from this area. Students are expected to master three cognitive competencies and four performance competences from this area.

## **4.2. COMPETENCIES AND SUBCOMPETENCIES**

The identified competencies and related subcompetencies that are to be mastered by the students in accountancy at higher secondary level have been presented here.

<p style="text-align: center;"><b>AREA 1</b> <b>THEORY BASE OF ACCOUNTANCY</b></p>
--

### **1.1. Developing awareness about Accountancy**

- 1.1.1. To describe the need of Accountancy
- 1.1.2. To identify the users of accounting information

### **1.2. Developing awareness about basic terms in Accountancy**

- 1.2.1. To list the basic terms Accountancy
- 1.2.2. To explain the meaning of basic terms
- 1.2.3. To use appropriate terms while different contexts

### **1.3. Distinguishing between Accountancy and Book keeping**

- 1.3.1. To describe the scope of Book keeping and Accountancy
- 1.3.2. To differentiate between Book keeping and Accountancy
- 1.3.3. To define Book keeping and Accountancy
- 1.3.4. To find the objectives of Accountancy
- 1.3.5. To state the advantages of Accountancy

### **1.4. Gaining insight into the basic assumptions in Accountancy**

- 1.4.1. To explain the need and importance of assumption in Accountancy
- 1.4.2. To describe the basic assumptions in Accountancy

1.4.3. To justify accounting practices on the basis of assumptions of Accountancy

**1.5. Gaining insight into the basic principles of Accountancy**

1.5.1. To state the need and importance of principles of Accountancy

1.5.2. To describe the basic principles in Accountancy

1.5.3. To distinguish between assumptions and principles of Accountancy

1.5.4. To judge the accounting practices on the basis of the principles of accountancy.

**1.6. Developing awareness in the modifying principles of Accountancy**

1.6.1. To state the need of modifying principles

1.6.2. To describe the modifying principles in Accountancy

1.6.3. To explain the logic of modifying principles

<p style="text-align: center;"><b>AREA 2</b> <b>ORIGIN AND RECORDING OF TRANSACTIONS</b></p>
--

**2.1. Developing awareness about the double entry system of Accountancy**

2.1.1. To describe the double entry system of Accountancy

2.1.2. To identify the double aspects of each transaction

2.1.3. To develop the principles of double entry.

2.1.4. To justify the practice of double entry system of Accountancy

**2.2. Formulating the rules of debit and credit**

2.2.1. To describe the effect of transactions in various accounts

2.2.2. To develop the rules of debit and credit for different types of accounts

2.2.3. To apply the rules to find the debit and credit aspects of transactions

**2.3. Formulating Accounting equations**

2.3.1. To find Accounting equations

2.3.2. To describe the Accounting equations

2.3.3. To analyse the transactions using Accounting equations

**2.4. Gaining expertise in the preparation of Journal**

2.4.1. To draw the correct format for preparing journal

2.4.2. To use appropriate rules for journalising transaction.

2.4.3. To pass entries for recording transactions

2.4.4. To describe the steps involved in the process of journalising

**2.5. Gaining expertise in the preparation of accounts.**

2.5.1. To use correct format for preparing accounts

2.5.2. To post entries in appropriate accounts

2.5.3. To balance accounts accurately

2.5.4. To interpret account balances

2.5.5. To describe the process of preparing accounts

**2.6. Gaining expertise in the preparation of cash book**

2.6.1. To use suitable format for preparing cash book

2.6.2. To use appropriate title while preparing cash book

2.6.3. To record transactions correctly in the cash book

2.6.4. To balance the cash book accurately

2.6.5. To post entries from cash book to appropriate accounts

2.6.6. To describe the process of preparing different types of cash books

**2.7. Developing expertise in the preparation of Purchases Day Book**

2.7.1. To frame suitable format for preparing Purchases Day Book

2.7.2. To record entries correctly in the Purchases Day Book

2.7.3. To post entries from Purchases Day Book to respective accounts

**2.8. Developing expertise in the preparation of Purchases Return Book**

2.8.1. To frame suitable format for preparing Purchases Return Book

2.8.2. To record entries correctly in the Purchases Return Book

2.8.3. To post entries from Purchases Return Book to respective accounts

**2.9. Developing expertise in the preparation of Sales Day Book**

2.9.1. To frame suitable format for preparing Sales Day Book

2.9.2. To record entries correctly in the Sales Day Book

2.9.3. To post entries from Sales Day Book to respective accounts

**2.10. Developing expertise in the preparation of Sales Return Book**

2. 10.1. To frame suitable format for preparing Sales Return Book

2. 10.2. To record entries correctly in the Sales Return Book

2. 10.3. To post entries from Sales Return Book to respective accounts

**2.11. Preparing bank reconciliation statement**

2.11.1. To describe the objectives of preparing bank reconciliation statement

2.11.2. To state the causes of disagreement between bank account and passbook

2.11.3. To describe the method of reconciling the difference between the two

2.11.4. To use suitable format for preparing bank reconciliation statement

2.11.5. To reconcile bank account with pass book

<p style="text-align: center;"><b>AREA 3</b> <b>TRIAL BALANCE AND ERRORS</b></p>
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**3.1. To Prepare Trail Balance**

- 3.1.1.1 To gain insights into the objectives and purposes of preparing trail balance
- 3.1.2 To use appropriate format for preparing trail balance
- 3.1.3 To construct trail balance form the account balances.
- 3.1.4 To judge the arithmetical accuracy

**3.2. Adopting appropriate procedure for rectifying errors**

- 3.2.1. To locate errors
- 3.2.2. To find the causes of errors
- 3.2.3. To describe the effect of various errors on trail balance
- 3.2.4. To describe the method of rectifying errors.
- 3.2.5. To pass rectifying journal entries
- 3.2.6. To make artificial agreement of trail balance with suspense account
- 3.2.7. To prepare suspense Account
- 3.2.8. To dispose suspense account

<b>AREA 4 FINANCIAL STATEMENTS</b>
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**4.1. Developing insights into the purposes of financial statement**

- 4.1.1. To describe the financial statements usually prepared by business firms
- 4.1.2. To state the uses of financial statements

**4.2. Preparing trading account**

- 4.2.1. The list the items comes in the trading account

- 4.2.2. To use appropriate format for preparing trading account
- 4.2.3. To record various items in the trading accounts in their proper order.
- 4.2.4. To compute the gross profit gross loss from the trading account.
- 4.2.5. To make necessary adjustments in the trading account.

### **4.3. Preparing profit and loss account**

- 4.3.1. To differentiate between trading account and profit and loss account
- 4.3.2. To list the items come in the profit and loss account
- 4.3.3. To use suitable format for preparing profit and loss account
- 4.3.4. To record various items in the profit and loss account in the proper order.
- 4.3.5. To compute the net profit and net loss.
- 4.3.6. To make necessary adjustment in the profit and loss account.

### **4.4. Preparing balance sheet**

- 4.4.1. To describe the objectives of preparing balance sheet.
- 4.4.2. The list the items come in the balance sheet.
- 4.4.3. To use appropriate format for preparing balance sheet.
- 4.4.4. To record various items in the balance sheet in their proper order
- 4.4.5. To find the agreement of total assets with total liabilities.
- 4.4.6. To make necessary adjustments while preparing balance sheet.
- 4.4.7. To differentiate between balance sheet and trial balance

<b>AREA 5 DEPRECIATION, RESERVE AND PROVISIONS</b>
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## **5.1 Developing the concept of depreciation**

- 5.1.1. To explain the meaning of depreciation

5.1.2. To describe the causes of charging depreciation

5.1.3. To state the objectives of providing depreciation

5.1.4. To describe the basis of providing depreciation

**5.2. Gaining awareness about the methods of providing depreciation**

5.2.1. To describe the various methods of providing depreciation

5.2.2. To differentiate the methods of providing depreciation

5.2.3. To compute the amount of depreciation under different methods

5.2.4. To pass entries related to depreciation

**5.3. Developing awareness about reserves and provisions**

5.3.1. To explain the meaning of reserves and provisions

5.3.2. To state the objectives of providing for reserves and provisions

5.3.3. To differentiate between reserves and provisions

5.3.4. To describe different types of reserves and provisions

**5.4. Adopting appropriate procedure for recording reserves provisions**

5.4.1. To describe the features of different types of reserves and provisions

5.4.2. To explain the procedure for recording reserves and provisions

5.4.3. To pass necessary entries for recording reserves and provisions

5.4.4. To prepare necessary accounts related to reserves and provisions

<p style="text-align: center;"><b>AREA 6</b> <b>BILLS OF EXCHANGE</b></p>
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**6.1. Developing awareness about bills of exchange**

6.1.1. To describe the features of bills of exchange

6.1.2. To identify the parties to a bill of exchange

- 6.1.3. To construct specimen of a bill of exchange
- 6.1.4. To state the uses of bill of exchange
- 6.1.5. To explain the meaning of the terms related to bill of exchange
- 6.1.6. To use appropriate terms
- 6.2. Gaining expertise in the accounting of bill transactions.**
  - 6.2.1. To use appropriate procedure for recording bill transaction
  - 6.2.2. To pass necessary entries to record bill transactions
  - 6.2.3. To prepare necessary accounts in the books of the drawer and the drawee.

<b>AREA 7</b> <b>ACCOUNTING OF NON- TRADING CONCERNS</b>
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- 7.1. Developing the concept of non-trading concerns**
  - 7.1.1. To describe the features of non-trading concerns
  - 7.1.2. To differentiate between non-trading concern and trading concern
  - 7.1.3. To specify the financial statements prepared by non-trading concerns
- 7.2. Preparing accounts of non-trading concerns**
  - 7.2.1. To use suitable format for preparing financial statements of non-trading concerns.
  - 7.2.2. To record items in the financial statements in their proper order
  - 7.2.3. To construct receipt and payment account
  - 7.2.4. To compute the 'cash in hand' at the end of the period
  - 7.2.5. To construct Income and Expenditure Account
  - 7.2.6. To compute the surplus/deficit for the period

- 7.2.7. To develop Receipt and Payment Account from Income and Expenditure Account
- 7.2.8. To develop Income and Expenditure Account from Receipt and Payment Account.
- 7.2.9. To differentiate between Receipt and Payment Account and Income and Expenditure Account
- 7.2.10. To construct the Balance sheet of non-trading concerns
- 7.2.11. To differentiate between the financial statements of non-trading concerns and trading concerns.

<b>AREA 8</b> <b>ACCOUNTS FROM INCOMPLETE RECORDS</b>
--

**8.1. Developing awareness about single entry book keeping**

- 8.1.1. To describe the features of single entry system of book keeping
- 8.1.2. To differentiate between single entry system and double entry system of book keeping
- 8.1.3. To state the limitations of single entry system
- 8.1.4. To explain the procedure for ascertaining missing figures

**8.2. Preparing accounts from incomplete records**

- 8.2.1. To use suitable format for preparing various statements
- 8.2.2. To compute profit/loss by preparing statement of affairs
- 8.2.3. To find the missing figures from available information
- 8.2.4. To construct final accounts from incomplete records

<b>AREA 9</b> <b>ACCOUNTING FOR PARTNERSHIP</b>
--

**9.1. developing awareness about the special aspects of partnership accounts**

- 9.1.1. To describe the special aspects of partnership accounts
- 9.1.2. To state the provision of Indian Partnership Act applicable to the accounting of partnership
- 9.1.3. To differentiate between the accounts of partnership and sole trader

**9.2. Preparing partners' capital accounts**

- 9.2.1. To describe the method of maintaining partners' capital accounts
- 9.2.2. To construct partners' capital account under fixed capital method
- 9.2.3. To construct partners capital account under fluctuating capital method
- 9.2.4. To different between the above methods

**9.3. Preparing profit and loss appropriation account**

- 9.3.1. To use appropriate format with suitable title for the preparation of profit and loss appropriation account
- 9.3.2. To make adjustments in profit and loss appropriation account
- 9.3.3. To find the net profit/net loss of the firm
- 9.3.4. To compute the share of profit of each partners in their profit sharing ratio.
- 9.3.5. To transfer the share of profit to the capital account respective partners

**9.4. Analyzing the effect of admission of a partner on the accounts of the firm.**

- 9.4.1 To describe accounting matters to be considered on the admission of a partner
- 9.4.2 To determine the accounting procedures required on the admission of a partner

9.4.3 To compute the new profit sharing ratio of partners

**9.5 Adopting appropriate accounting procedure for recording goodwill on admission of a partner.**

9.5.1 To describe the need for valuing goodwill on the admission of a partner

9.5.2 To calculate goodwill under different methods.

9.5.3 To compute the share of goodwill for each partner

9.5.4 To pass necessary entries to record goodwill on admission of a partner

**9.6. Adopting appropriate accounting procedure to record the revaluation of assets and liabilities of the firm.**

9.6.1. To pass necessary entries to record the revaluation of assets and liabilities

9.6.2. To prepare profit and loss adjustment account

9.6.3. To compute the profit/loss on revaluation

9.6.4. To transfer the profit/loss on revaluation to partners' capital accounts

9.6.5. To construct the balance sheet of the new firm

**9.7. Analyzing the effect of retirement/death of a partner on the accounts of the firm**

9.7.1. To describe the matters to be considered on the retirements/death of a partner

9.7.2. To determine the accounting procedure to be adopted on retirement/death of a partner

**9.7.3.** To find the change in profit sharing ratio of partners due to the retirement/death of a partner

**9.8. Adopting appropriate accounting procedure on retirement/death of a partner**

- 9.8.1. To calculate gaining ratio
- 9.8.2. To pass entries to record the payment of goodwill to the retiring partner/heirs of deceased partner
- 9.8.3. To compute the amount due to the retiring/deceased partner
- 9.8.4. To pass entries related to the joint life policy of partners
- 9.8.5. To prepare joint life policy account of partners
- 9.8.6. To settle accounts of the retiring/deceased partner
- 9.8.7. To prepare balance sheet of the new firm

### **9.9 Settling the accounts on the dissolution of the firm**

- 9.9.1. To state the rules in the Act related to the settlement of accounts on dissolution of a partnership firm.
- 9.9.2. To describe the procedure to be adopted on the dissolution of a firm
- 9.9.3. To pass entries to close book of accounts of the firm
- 9.9.4. To prepare realization account.

<b>AREA 10 COMPANY ACCOUNTS</b>
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### **10.1. Developing awareness about the special feature of company**

- 10.1.1. To identify the stages in the formation a company
- 10.1.2. To describe the steps involved in the raising of share capital
- 10.1.3. To differentiate between equity shares and preference shares

### **10.2. Using appropriate accounting procedure to record the raising of share capital**

- 10.2.1. To pass necessary entries related to application, allotment and calls
- 10.2.2. To find the rate of allotment of shares in the case of over subscription of shares
- 10.2.3. To pass entries on the issue of shares at a premium and at a discount
- 10.2.4. To record calls in advance and calls in arrear.

**10.3. Adopting suitable accounting procedure to record forfeiture of shares**

- 10.3.1. To analyze the effect of forfeiture of shares on various accounts
- 10.3.2. To pass necessary entries on forfeiture of shares
- 10.3.3. To pass entries on re-issue of forfeited shares
- 10.3.4. To prepare forfeited share account

**10.4. Developing the concept of debenture**

- 10.4.1. To identify the features of debenture
- 10.4.2. To differentiate between debenture and shares
- 10.4.3. To enumerate different types of debentures
- 10.4.4. To describe the ways of issuing debenture.

**10.5. Gaining expertise in the accounting procedure related to issue of debentures**

- 10.5.1. To pass entries on issue of debentures at par, at a discount and at a premium
- 10.5.2. To record the issue of debenture as collateral security by suitable journal entry
- 10.5.3. To make entries to record debenture interest

**10.6. Using suitable accounting procedure to record the redemption of debentures**

10.6.1. To describe various methods of redemption of debentures

10.6.2. To compare the accounting treatment of various methods of redemption of debentures

10.6.3. To make entries to record the redemption of debenture under different methods.

**10.7. Preparing the balance sheet of company**

10.7.1. To use appropriate format for the preparation of balance sheet of company

10.7.2. To use appropriate major headings for showing assets and liabilities while preparing balance sheet

<p style="text-align: center;"><b>AREA 11</b> <b>ANALYSIS OF FINANCIAL STATEMENTS</b></p>
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**11.1. Acquiring awareness about the analysis of financial statement**

11.1.1. To identify the need for analyzing financial statements

11.1.2. To describe the process of analyzing financial statement

11.1.3. To explain various methods of analyzing financial statements

11.1.4. To describe the tools used for analyzing financial statements

**11.2. Analyzing financial statement by calculating ratios.**

11.2.1. To develop formula for finding various ratios

11.2.2. To compute ratios related to equity, solvency, activity and profitability

11.2.3. To interpret the calculated ratios

11.2.4. To draw conclusions about the liquidity, solvency, activity and profitability of the firm based on the ratios calculated

**11.3. Preparing fund flow statement**

- 11.3.1. To describe the sources and uses of funds
- 11.3.2. To find the inflow and outflow of cash
- 11.3.3. To compute fund from operation
- 11.3.4. To use appropriate format for preparing fund flow statement
- 11.3.5. To record the sources and application of funds in the statement

**11.4. Preparing cash flow statement**

- 11.4.1. To describe the sources and uses of cash
- 11.4.2. To compute 'cash from operation'
- 11.4.3. To use appropriate format for preparing cash flow statement
- 11.4.4. To record the sources and uses of cash in the cash flow statement

**11.5. Preparing comparative financial statement**

- 11.5.1. To compare the figures of financial statements of various years
- 11.5.2. To find the changes in each items for the period
- 11.5.3. To assess the increase/decrease in terms of percentages
- 11.5.4. To use appropriate format for the preparation of comparative financial statements
- 11.5.5. To construct comparative financial statement
- 11.5.6. To construct comparative statement of income.

**11.6. Interpreting the comparative financial statement**

- 11.6.1. To analyze the comparative financial statement
- 11.6.2. To compare the changes in the figures over the period
- 11.6.3. To draw conclusions from the comparative financial statement

**11.7. Preparing cash budget**

- 11.7.1. To design a suitable format for cash budget
- 11.7.2. To estimate the sources and uses of cash from the available information
- 11.7.3. To record the sources and uses of cash in the cash budget
- 11.7.4. To forecast the closing balance of cash at the end of each period
- 11.7.5. To describe the uses of cash budget.

### **4.3. ANALYSIS OF OBSERVATIONS ON THE IDENTIFIED COMPETENCIES**

The finalised list of competencies was presented to higher secondary commerce teachers for their observation in order to establish the reliability of it. To facilitate the observation an observations schedule has been developed by the investigator following the procedure described in the methodology chapter. This section analyse the observations of the higher secondary school teachers regarding the possession of the essential attributes by the stated competencies. The observations made by the higher secondary school teachers regarding the possession of the six essential attributes by the stated competencies were presented in the table 5.4.

**Table 5.4**

#### **Teachers' Observation on the identified Competencies**

SI No	Attributes	Observation		
		To a great extent	To some extent	To a minimum extent
1	Functionality	84.86	12.08	3.06
2	Achievability	81.39	15.00	3.61
3	Communicability	92.75	7.25	0
4	Evaluability	77.22	15.28	7.5
5	Learning Continuum	82.78	12.22	5

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6	Coverage	82.23	14.44	3.33
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From the table 5.4 it can be observed that the majority of responses in respect of each attribute fall under the category ‘to a great extent’.

84.86 % of teachers observed that the identified competencies possess the attribute functionality ‘to great extent’. 12.08% of teachers’ observations fall under ‘to some extent’ category.

81.39% of teachers observed that the identified competencies are achievable ‘to great extent’ and 15% of teachers observed that they are achievable ‘to some extent’.

In respect of the attribute communicability 92.75% of teachers observed that the identified competencies possess the same ‘to a great extent’. The remaining 7.25 teachers observed this attribute ‘to some extent’ in respect of the identified competencies.

With regard to the attribute evaluability 77.22% of teachers observed that the identified competencies possess it ‘to a great extent’ while 15.28 % of teachers observed the same ‘to some extent’. Only a negligible portion of teachers’ observation falls under the category ‘to minimum extent’.

82.78 % of teachers observed that the identified competencies possess the quality of learning continuum, while 12.22 % of teachers observed the same ‘to some extent’.

82.23 % of teachers observed that the list of identified competencies cover both the cognitive and performance competencies expected to be mastered by students at higher secondary level.

The above discussion reveals that the identified competencies possess all the essential attributes that is to be satisfied by competency statements. Hence it is evident that the list of competencies presented in this chapter is highly reliable.

## **Chapter VI**

# **ANALYSIS AND INTERPRETATION**

- 
- 6.1. Instructional Strategies and Mastery of Competencies
  - 6.2. Instructional Strategies and the Extent of Masters
  - 6.3. Instructional Strategies and Attitude towards Accountancy
  - 6.4. Instructional Strategies and Self Esteem
  - 6.5. Tenability of Hypotheses
  - 6.7. Discussion of the Results
-

# **ANALYSIS AND INTERPRETATION**

The major objective of the study is to determine the effectiveness of competency based instruction in the attainment of mastery level learning in accountancy among higher secondary school students. Experimental method has been adopted to test the effectiveness of Competency Based Instruction (CBI) by comparing it with the Conventional Method of Teaching (CMT). A sample of 240 higher secondary school students has been selected for the purpose of the experiments. The experimental group consist of 122 students and the control group consist of 188 students.

The experimental and control groups involves two batches. Before the experiment a prerequisite test in accountancy has been administered to the students and found that they possess the required competencies to further master the competencies targeted in the experiment. A criterion referenced achievement test in accountancy has been also administered to the students of both the experimental and control group.

This chapter answer the empirical validation of the competency based instruction through statistical analysis of the data. The collected data are scientifically analysed and rationally interpreted by employing appropriate statistical techniques. The collected data were analysed at two levels- descriptive and inferential. For descriptive analysis, mean and standard

deviation etc. were employed. For inferential analysis testing of significance of difference between means and percentages were adopted.

The data have been analysed statistically with reference to the following objectives of the study.

1. To identify the major competencies to be mastered by students in accountancy at higher secondary level
2. To identify the sub competencies to be acquired by the students for the mastery of each of the competencies in Accountancy
3. To develop competency based instructional modules for mastery of selected competencies in accountancy.
4. To study the effectiveness of the competency based instruction (CBI) and conventional method of teaching (CMT) in the mastery of competencies in accountancy
5. To study the effect of the competency based approach to teaching accountancy on the self esteem of the students
6. To study whether the competency based approach to teaching accountancy influence the attitude of the students towards accountancy.

As mentioned earlier, the present study aimed at finding the effectiveness of Competency Based Instruction in the attainment of mastery level learning in accountancy among the higher secondary school students. Based on the objectives of the study the following hypotheses are formulated.

1. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of competencies in accountancy.
2. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of cognitive competencies in accountancy.
3. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of performance competencies in accountancy.
4. There is no significant difference between the percentage of masters of competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
5. There is no significant difference between the percentage of masters of cognitive competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
6. There is no significant difference between the percentage of masters of performance competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).

7. There is no significant gender difference in respect of mastery of competencies in accountancy.
8. The Competency Based Instruction (CBI) has no significant impact on the attitude of students towards accountancy.
9. The Competency Based Instruction (CBI) has no significant impact on the self esteem of students.

### **6.1. INSTRUCTIONAL STRATEGIES AND MASTERY OF COMPETENCIES**

In order to find out the effectiveness of Competency Based Instruction (CBI) over the Conventional Method of Teaching (CMT), students' mastery was assessed by administering the Criterion Referenced Achievement test in Accountancy for standard XI in the control group (CMT) and the experimental group (CBI) before and after the treatment and different statistical methods were applied to compare the test scores obtained.

#### **6.1.1. Distribution of Pretest Scores of Mastery of Competencies in Accountancy**

Statistical measures like mean, median, standard deviation, range and skewness were computed for the pretest scores of the mastery of competencies in accountancy for the control group (CMT) and the experimental group (CBI) to determine the dependability of the sample statistics and to compare the mastery scores of these groups in the ensuing analysis. The details of the analysis have been presented in the Table No. 6.1.

**Table 6.1**

#### **Measures of Central Tendency and Dispersion of Pretest Scores of Mastery of Competencies in Accountancy**

<b>Group</b>		<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>Median</b>	<b>S D</b>	<b>Skewness</b>
Experimental	Boys	58	11	19.02	19	2.59	-0.020
	Girls	64	11	18.95	19	2.96	0.184
	<b>Total</b>	<b>122</b>	<b>11</b>	<b>18.98</b>	<b>19</b>	<b>2.78</b>	<b>0.102</b>
Control	Boys	57	12	19.58	20	2.74	-0.502
	Girls	61	10	18.59	19	2.44	0.131
	<b>Total</b>	<b>118</b>	<b>12</b>	<b>19.07</b>	<b>19</b>	<b>2.63</b>	<b>-0.151</b>

Table 6.1 reveals that the measures of central tendency—mean and median of the pretest scores of the experimental and control group for the total sample and the sub samples are almost equal. The mean pretest scores of the experimental and control group are 18.98 and 19.07 respectively with standard deviation of 2.78 and 2.63. The standard deviations are comparatively small which suggests that the scores are not deviating widely from the measures central tendencies.

The mean pretest scores of the boys and girls of the experimental group are almost equal. The mean pretest scores of boys and girls of the experimental group are 19.02 and 18.95 respectively with standard deviation 2.59 and 2.96.

In the same way the mean pretest scores of the boys and girls of the control group are also almost equal. It is 19.85 for boys and 18.59 for girls with standard deviation of 2.74 and 2.44 respectively.

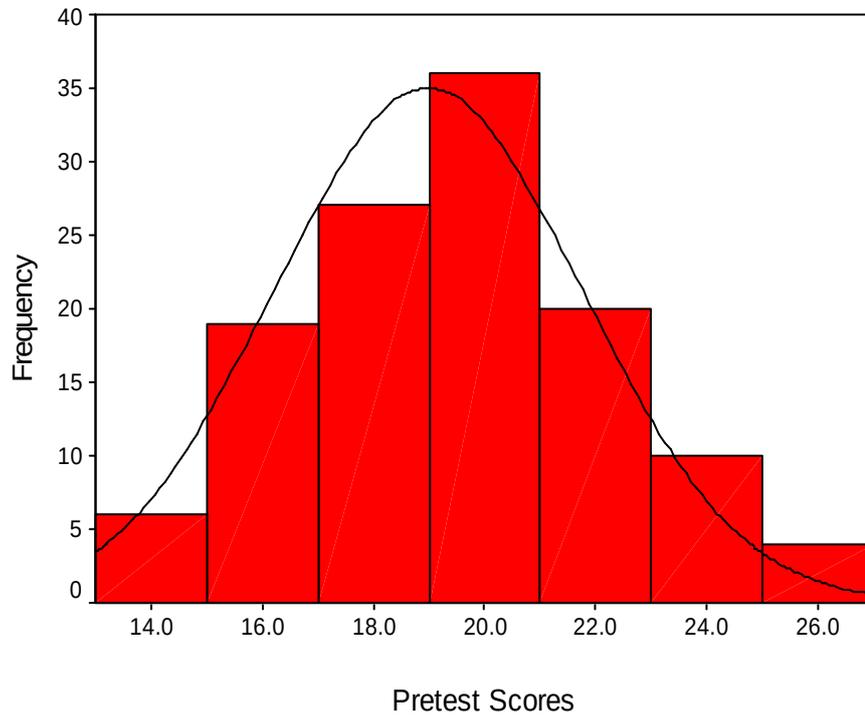
This shows that the experimental and control groups and the subgroups are almost equal in respect of their mastery of competencies in accountancy before the treatment.

Indices of skewness suggest that the distribution of pretest scores of the experimental group is slightly positively skewed, while the distribution of pretest scores of the control group is slightly negatively skewed. For the experimental group it is 0.184 and -0.151 for the control group.

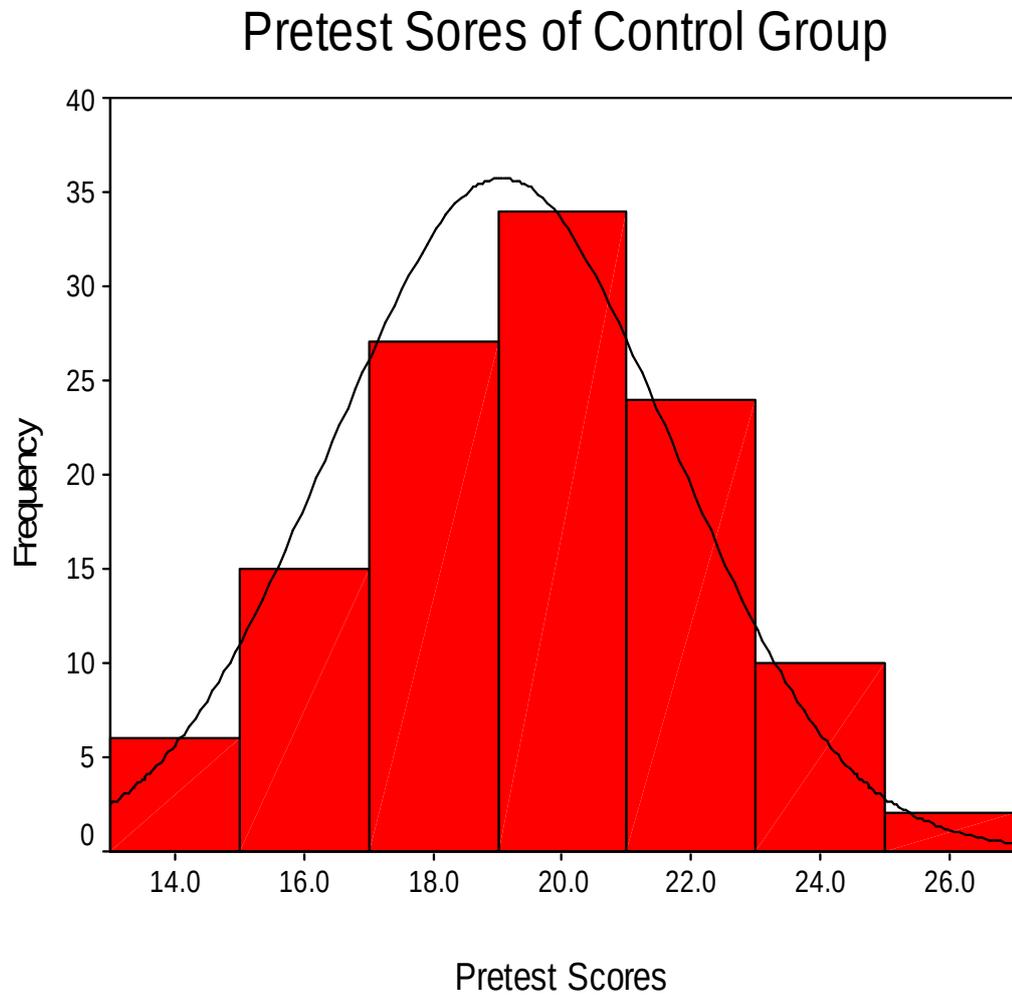
The frequency curves and graphs drawn for the distribution of scores of pretest for the experimental and control group have been presented in Figure 6.1 and 6.2. The frequency curves show that the distributions follow the properties of a normal curve. The mean pretest scores of experimental and control groups for the total samples and the sub samples have been presented in the figure 6.3.

**Fig. 6.1**

Pretest Scores of Experimental Group

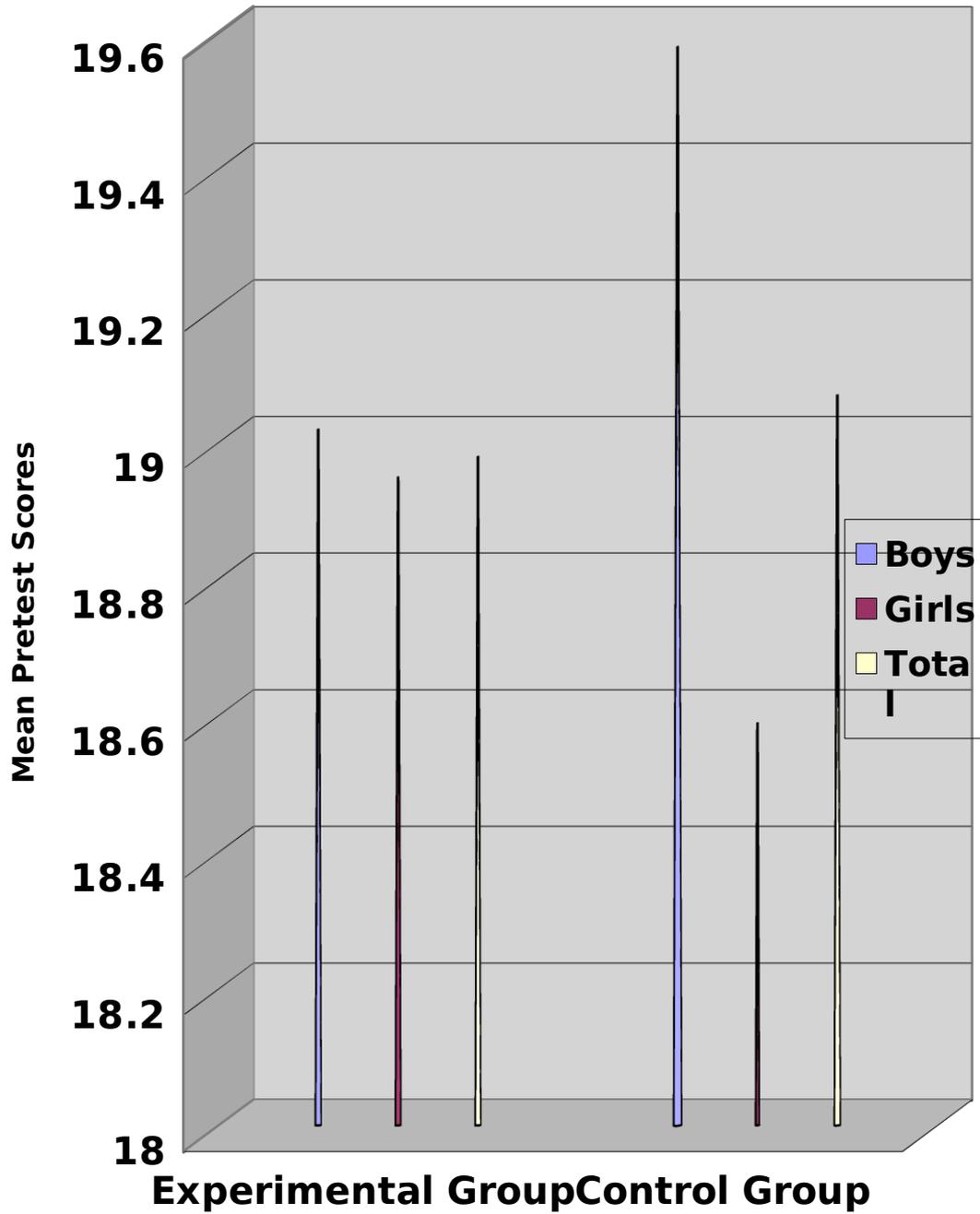


**Fig. 6.2**



**Fig .6.3**

**Mean Pretest Scores of Experimental and Control Group**



**6.1.2. Distribution of Posttest Scores of Mastery of Competencies in Accountancy**

Statistical measures like range, mean, median, standard deviation and skewness were computed for the posttest scores of the mastery of the experimental and control group to compare the terminal level of mastery of competencies of both the groups. The details of the analysis have been presented in the Table No. 6.2.

**Table 6.2**

**Measures of Central Tendency and Dispersion of Posttest Scores of  
Mastery of Competencies in Accountancy of Experimental and Control  
Group**

<b>Group</b>		<b>N</b>	<b>Rang e</b>	<b>Mean</b>	<b>Media n</b>	<b>SD</b>	<b>Skewnes s</b>
Experimental	Boys	58	24	83.16	83	6.3	-0.258
	Girls	64	16	83.19	83	4.46	-0.555
	<b>Total</b>	<b>122</b>	<b>24</b>	<b>83.17</b>	<b>83</b>	<b>5.39</b>	<b>-0.355</b>
Control	Boys	57	17	72.56	72	4.78	-0.165
	Girls	61	19	73.03	74	4.49	-0.839
	<b>Total</b>	<b>118</b>	<b>19</b>	<b>72.81</b>	<b>73</b>	<b>4.62</b>	<b>-0.485</b>

Table 6.2 shows that the measures of central tendency- mean and median of the posttest scores of the experimental and control group for the total sample and the sub samples. The mean posttest scores of the experimental and control group are 83.17 and 72.81 respectively with standard deviation of 5.39 and 4.62. The standard deviations are comparatively small which suggests that the scores are not deviating widely from the measures central tendencies.

The mean posttest scores of the boys and girls of the experimental group are almost equal. The mean posttest scores of boys and girls of the experimental group are 83.16 and 83.19 respectively with standard deviation 6.3 and 4.46.

The mean posttest scores of the boys and girls of the control group are also almost equal. As revealed in the table it is 72.56 for boys and 73.03 for girls with standard deviation of 4.78 and 4.49 respectively.

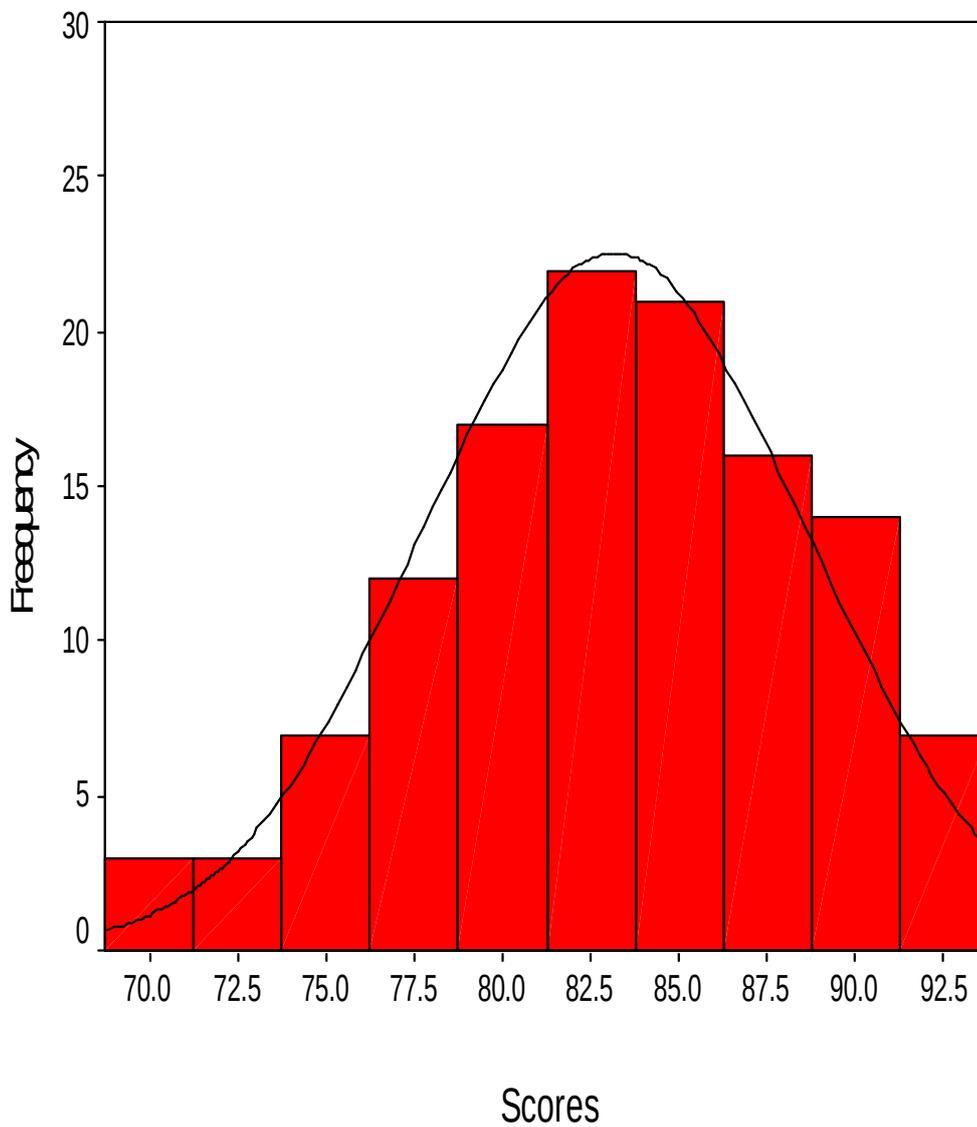
Indices of skewness suggest that the distribution of the posttest scores of the experimental group and control group are slightly negatively skewed. The value of skewness is -0.355 and -0.485 respectively for the experimental group and the control group.

The frequency curves and graphs drawn for the distribution of scores of posttest for the experimental group and control group have been presented in Figure 6.4, and 6.5. The mean posttest scores of the experimental group

and the control group for the total samples and the sub samples have been presented in the figure 6.6.

**Fig. 6.4**

### Posttest Scores of Experimental Group



**Fig. 6.5**

### Posttest Scores of Control Group

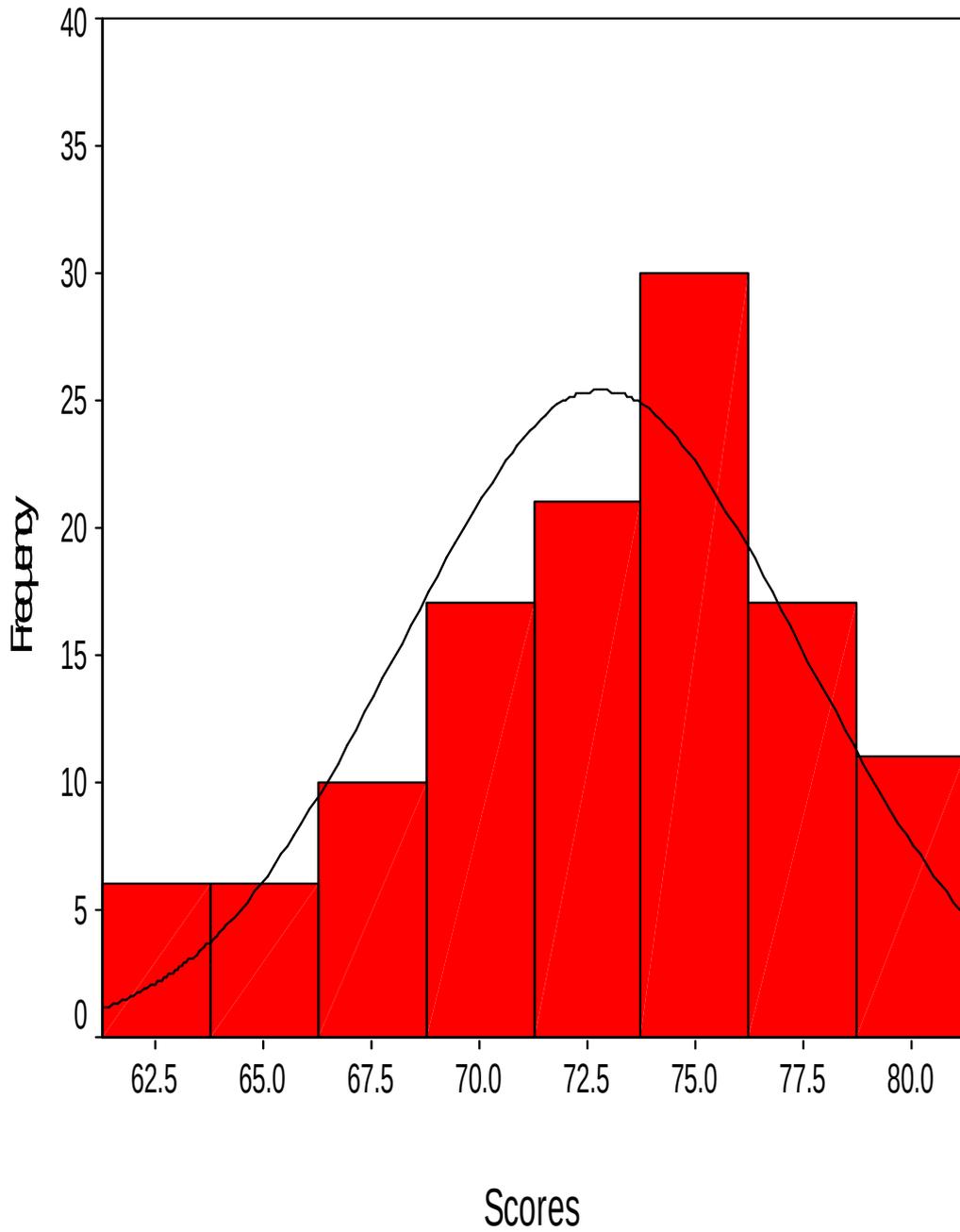
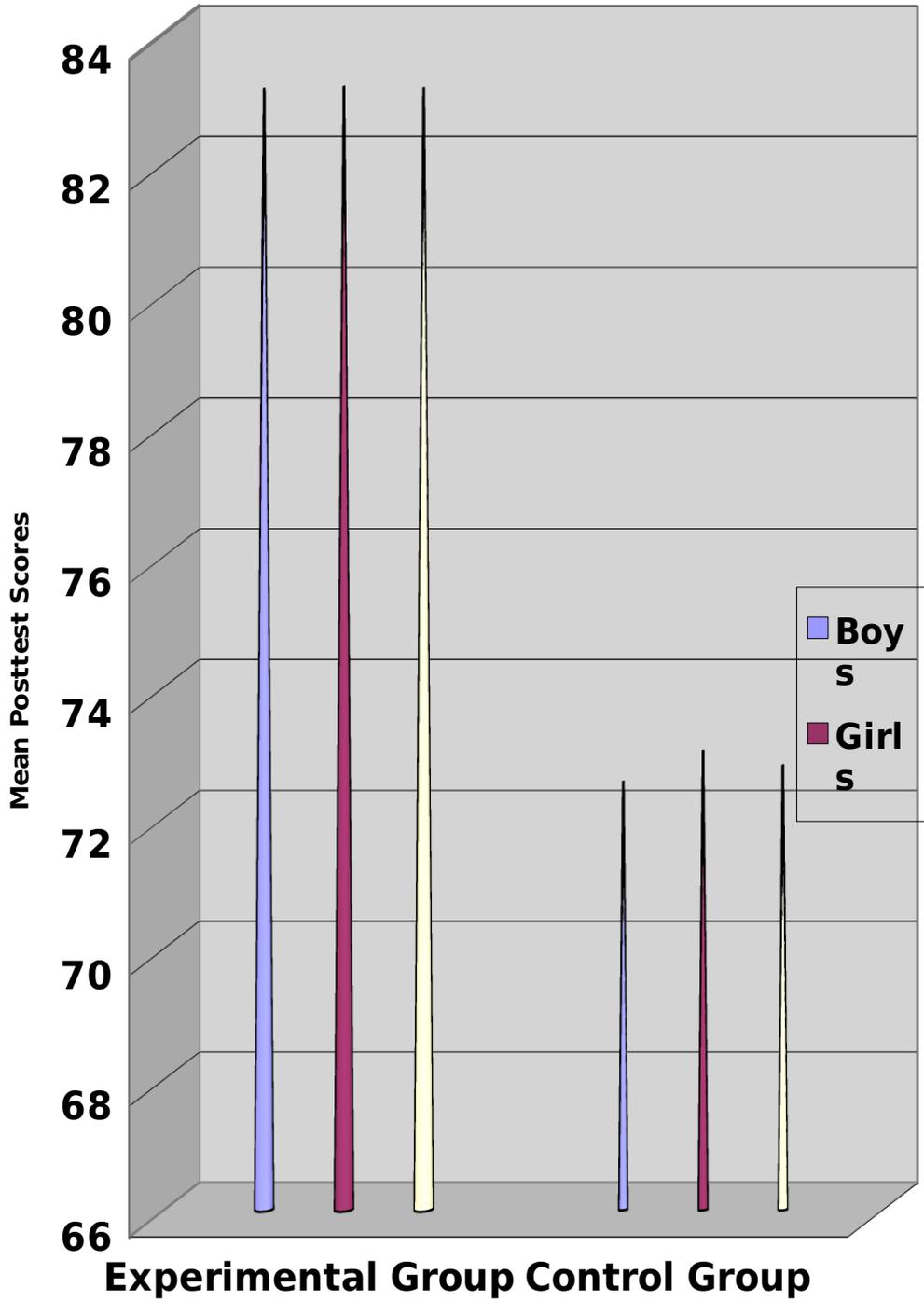


Fig. 6.5

Mean Posttest Scores of Experimental and Control Group



### **6.1.3. Dependability of Sample Statistics**

The standard error of the sample mean and standard deviations of the pretest and posttest scores of the control group (CMT) and experimental group (CBI) were calculated. The preliminary analysis was found necessary for the study of the dependability of the sample statistics. The dependability of the sample statistics for the pretest and posttest scores of mastery of competencies in accountancy of the control group (CMT) and experimental group (CBI) was determined by computing the standard error of the mean and standard deviation and by establishing confidence intervals. The results are given separately for the pretest and posttest.

#### **6.1.3.1. Pretest Scores**

The mean, standard deviation, their standard error and the confidence interval of the pretest scores of the mastery of competencies in accountancy of the control group (CMT) and experimental group (CBI) are given in Table 6.3.

It can be observed from the table 6.3 that the confidence interval of the pretest scores of the subsamples and the total samples of both the control (CMT) and experimental (CBI) groups at 0.99 level are very narrow. It is obvious from these narrow ranges that the sample means and the sample deviations of pretest of mastery scores in accountancy of the students in the control group and experimental group are very much dependable.

**Table 6.3**

**Mean, Standard Deviation and Standard Error and Confidence Interval of Pretest Scores of Mastery of Competencies in Accountancy**

<b>Group</b>		<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>SE<sub>M</sub></b>	<b>SE<sub>σ</sub></b>	<b>Confidence Interval</b>
<b>Experimental</b>	Boys	58	19.02	2.59	0.34	0.314	18.11-19.92
	Girls	64	18.95	2.96	0.37	0.314	17.97-19.93
	<b>Total</b>	<b>122</b>	<b>18.98</b>	<b>2.78</b>	<b>0.25</b>	<b>0.219</b>	<b>18.33-19.64</b>
<b>Control</b>	Boys	57	19.58	2.74	0.36	0.316	18.61-20.55
	Girls	61	18.59	2.44	0.31	0.306	17.76-19.42
	<b>Total</b>	<b>118</b>	<b>19.07</b>	<b>2.63</b>	<b>0.24</b>	<b>0.223</b>	<b>18.43-19.70</b>

### 6.1.3.2. Posttest Scores

The mean, standard deviation, their standard error and the confidence interval of the posttest scores of the mastery of competencies in accountancy of the control group (CMT) and experimental group (CBI) are given in Table 6.4.

**Table 6.4**

**Mean, Standard Deviation and Standard Error and Confidence Interval  
of Posttest Scores of Mastery of Competencies in Accountancy**

Group		N	Mean	S.D	SE <sub>M</sub>	SE <sub>σ</sub>	Confidence Interval
Experimental	Boys	58	83.16	6.30	0.83	0.31 4	80.95- 85.36
	Girls	64	83.19	4.66	0.56	0.29 9	81.71- 84.67
	<b>Total</b>	<b>122</b>	<b>83.17</b>	<b>5.39</b>	<b>0.49</b>	<b>0.21</b> <b>9</b>	<b>81.89-</b> <b>84.45</b>
Control	Boys	57	72.56	4.78	0.63	0.31 6	70.87- 74.25
	Girls	61	73.03	4.49	0.58 0	0.30 6	71.50- 74.56
	<b>Total</b>	<b>118</b>	<b>72.81</b>	<b>4.62</b>	<b>0.43</b>	<b>0.22</b> <b>3</b>	<b>71.69-</b> <b>73.92</b>

It can be seen from the Table 6.4 that the confidence interval of the posttest scores of the subsamples and the total samples of both the control (CMT) and experimental (CBI) groups at 0.99 levels are very narrow. It is obvious from these narrow ranges that the sample means and the sample

deviations of posttest of mastery scores in accountancy of the students in the control group and experimental group are very much dependable.

#### **6.1.4. Gain in Performance in Accountancy by the Experimental Group over the Control Group**

The differences in the pretest and post test scores of students in the experimental (CBI) and control (CMT) group were condensed into frequency tables and the arithmetic mean, median, standard deviation and skewness were computed. The values obtained are presented in the Table 4.5. They are graphically presented in Figure 6.7.

**Table 6.5**

#### **Measures of Central Tendency and Dispersion of Gain Scores of Mastery of Competencies in Accountancy of Experimental and Control Group**

<b>Group</b>		<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>Median</b>	<b>SD</b>	<b>Skewness</b>
Experimental	Boys	58	20	64.14	64	4.74	-0.173
	Girls	64	20	64.23	64	3.77	-0.476
	<b>Total</b>	<b>122</b>	<b>20</b>	<b>64.19</b>	<b>64</b>	<b>4.24</b>	<b>-0.291</b>
Control	Boys	57	22	52.98	53	4.43	0.167
	Girls	61	26	54.44	55	5.65	-0.384

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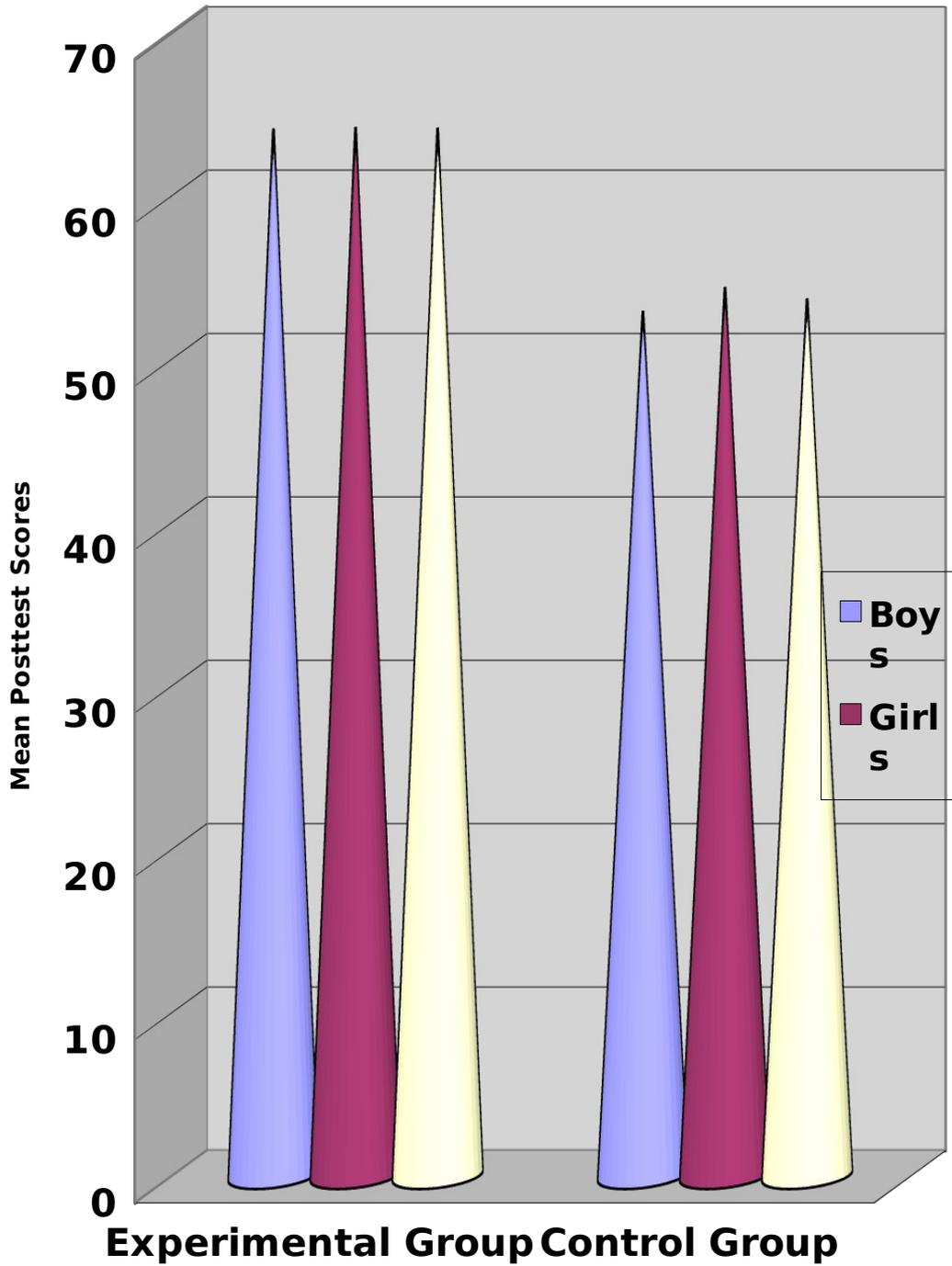
	<b>Total</b>	<b>118</b>	<b>26</b>	<b>53.74</b>	<b>54</b>	<b>5.13</b>	<b>-0.277</b>
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The mean gain score of the control group (CMT) is 53.74 and those of the experimental group (CBI) is 64.19. It indicates that the experimental group has performed better than the control group in the criterion referenced achievement test in accountancy after the treatment. The value of the median is 64 in the cases of experimental group while it is only 54 in the case of control group. This shows that the fifty percent of the students in control group (CMT) obtained gain scores above 54 whereas the fifty percent of the students in the experimental group (CBI) obtained gain scores above 64. The high value of the median of the experimental group also shows their better performance in the mastery of competencies in accountancy. There is not much difference found in the mean gain scores of mastery of competencies in accountancy among the boys and girls within the experimental group and control group.

The moderate values of standard deviation for the experimental group (CBI) and control group (CMT) show that the gain scores do not vary much. The skewness obtained for the gain scores of the experimental group (CBI) is 0.291 and that of control group (CMT) is -0.277. This show that the distribution of gain scores of both the experimental group and control group is negatively skewed. The negative skewness indicates that the scores are slightly messed at the high end of the scale spreading gradually toward the low end.

**Fig. 6.7**

**Mean Gain Scores of Experimental and Control Group**



**6.1.5. Comparison of Pretest Scores**

The pretest scores of the mastery of competencies in accountancy for the total samples and relevant subsamples have been compared for differences. The details are given in the following sections.

#### **6.1.5.1. Comparison of Pretest Scores of the Experimental and Control Group**

The mean and standard deviation of the pretest scores of 240 students who learned accountancy in the Competency Based Approach and Conventional Method of Teaching have been found out. The critical ratio has been calculated and tested for significance. The data and result of the test of significance has been given in the Table 6.6.

**Table 6.6**

#### **Data and Result of the Test of Significance of the Difference between the Mean Pretest Scores of Students in the Experimental and Control Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	<b>122</b>	<b>18.98</b>	<b>2.78</b>	<b>0.241 #</b>
Controlled	<b>118</b>	<b>19.07</b>	<b>2.63</b>	

*# Not significant*

The mean pretest scores in the mastery of the experimental and control groups are 18.98 and 19.07 with standard deviation 2.78 and 2.63 respectively. The critical ratio is found to be 0.241. The values for

significance are 2.594 and 1.97 at 0.01 and 0.05 levels for  $df$  238. This shows that there is no significant difference between the pretest scores of students in the Competency Based Instructional (CBI) group and Conventional Method of Teaching (CMT) group ( $t = 0.241, p > 0.05$ ). It means that the two groups did not differ significantly in respect of the initial academic ability of the students. The marginal increase in the mean scores of the control group shows a very narrow difference between the mean achievements of the group. This may be due to the fact that the batches constituting the two groups were intact, non-equated classroom groups.

Hence it can be concluded that the experimental group and control group are more or less equal in respect of the level of mastery of competencies in accountancy before the experiment.

#### **6.1.5.2. Comparison of the Pretest Scores of Boys in the Experimental and Control Group**

The mean and standard deviation of the pretest scores of 115 boys who learned accountancy in the Competency Based Approach and Conventional Method of Teaching have been found out. The critical ratio has been calculated and tested for significance. The data and result of the test of significance has been given in the Table 6.7.

**Table 6.7**

#### **Data and Result of the Test of Significance of the Difference between the Mean Pretest Scores of Boys in the Experimental and Control Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	<b>58</b>	<b>19.02</b>	<b>2.59</b>	<b>1.130<sup>#</sup></b>
Controlled	<b>57</b>	<b>19.58</b>	<b>2.74</b>	

*# Not Significant*

As shown in the Table 6.7 the mean pretest scores of mastery of competencies in accountancy for the boys in the experimental and control groups are 19.02 and 19.58 with standard deviation 2.759 and 2.74 respectively. The critical ratio is found to be 1.130. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for *df* 113 ( $t = 1.130, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys in the Competency Based Instructional (CBI) group and Conventional Method of Teaching (CMT) group. It means that the two groups did not differ significantly in respect of the initial academic ability of the students. The narrow difference between the mean achievements of the group is not statistically significant.

So we can rightly conclude that the boys of the experimental and control groups are similar in respect of mastery of competencies in accountancy before the experiment.

#### **6.1.5.3. Comparison of the Pretest Scores of Girls in the Experimental and Control Group**

The mean and standard deviation of the pretest scores of 125 girls who learned accountancy in the Competency Based Approach and Conventional Method of Teaching have been found out. The critical ratio has been calculated and tested for significance. The data and result of the test of significance has been given in the Table 6.8.

**Table 6.8**

**Data and Result of the Test of Significance of the Difference between the Mean Pretest Scores of Girls in the Experimental and Control Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	<b>64</b>	<b>18.95</b>	<b>2.96</b>	<b>0.746<sup>#</sup></b>
Controlled	<b>61</b>	<b>18.59</b>	<b>2.44</b>	

*# Not significant*

The mean pretest scores of girls in the experimental group and control group are 18.95 and 18.59 respectively with standard deviation of 2.96 and 2.44. The critical ratio is found to be 0.746. The values for significance are 2.62 and 1.98 at 0.01 and 0.05 levels respectively for *df* 123 ( $t = 0.746$ ,  $p > 0.05$ ). This shows that there is no significant difference between the pretest scores of girls in the Competency Based Instructional (CBI) group and Conventional Method of Teaching (CMT) group. It means that the two groups did not differ significantly in respect of the initial academic ability. The

minute difference between the mean mastery scores of the girls in the experimental group and control groups is not statistically significant.

Hence it is concluded that the girls in the experimental group and control group are equal in respect of their mastery of competencies in accountancy before the treatment.

#### **6.1.5.4. Comparison of the Pretest Scores of Boys and Girls in the Experimental Group**

The mean and standard deviation of the pretest scores of boys and girls who learned accountancy in the Competency Based Approach have been found out separately in order to compare and verify whether there exists any difference between these groups. The critical ratio has been calculated and tested for significance. The data and result of the test of significance has been given in the Table 6.9.

**Table 6.9**

#### **Data and Result of the Test of Significance of the Difference between the Mean Pretest Scores of Boys and Girls in the Experimental Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Boys	58	19.02	2.59	<b>0.127<sup>#</sup></b>
Girls	64	18.95	2.96	

*# Not Significant*

The Table 6.9 shows that the mean pretest scores of the boys and girls in the experimental group are 19.02 and 18.95 respectively with standard deviation of 2.59 and 2.96. The critical ratio is found to be 0.127. The values for significance are 2.62 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  120 ( $t = 0.127, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the Competency Based Instructional (CBI) group. It means that the boys and girls in the experimental group did not differ significantly in respect of their initial academic ability before the experiment. The minute difference between the mean achievements between the groups is not statistically significant. So the boys and girls of the experimental group are almost equal in respect of mastery of competencies in accountancy before the treatment.

#### **6.1.5.5. Comparison of the Pretest Scores of the Boys and Girls in the Control Group**

The mean and standard deviation of the pretest scores of boys and girls who learned accountancy in the Traditional Teaching Method have been found out separately in order to compare and verify whether there exists any difference between these groups. The critical ratio has been calculated and tested for significance. The data and result of the test of significance has been given in the Table 6.10

**Table 6.10**

**Data and Result of the Test of Significance of the Difference between the Mean Pretest Scores of Boys and Girls in the Control Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>C R</b>
Boys	57	19.58	2.74	<b>0.281#</b>
Girls	61	18.59	2.44	

# *Not significant*

The mean pretest scores of the boys and girls in the control group are 19.58 and 18.59 respectively with standard deviation of 2.74 and 2.44. The critical ratio is found to be 0.281. The values for significance are 2.624 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  116 ( $t = 0.281, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the control group, i.e., the Conventional Method of Teaching (CMT) group. It means that the two groups did not differ significantly in respect of the initial academic ability. The small difference between the mean achievements between the groups is not statistically significant.

The above analysis shows that the control group and experimental group and the various subsamples within these groups are almost equal in respect if the initial level of mastery of competencies in accountancy.

### **6.1.6. Comparison of Mean Scores of Posttest**

The mean scores of posttest of the mastery of competencies in accountancy for the control group and the experimental group have been

computed for the total samples and the subsamples and compared. The details of the analysis are given in the following sections.

#### **6.1.6.1. Comparison of the Posttest Scores of the Experimental and Control Group**

The mean posttest scores of the experimental and control groups has been computed and compared. The difference in mean scores of posttest has been tested for significance by computing the critical ratio. The data and result are given in the Table 6.11.

**Table 6.11**  
**Data and Result of the Test of Significance of the Difference between the Mean Posttest Scores of Students in the Experimental and Control Groups**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	<b>122</b>	<b>83.17</b>	<b>5.39</b>	<b>15.967**</b>
Controlled	<b>118</b>	<b>72.81</b>	<b>4.62</b>	

**\*\* Significant at 0.01 level**

The Table No. 6.11 shows the details of the test of significance of difference between mean posttest scores of the experimental and control groups. From the table it is clear that there is a difference in the mean posttest scores

of the experimental group and the control group. The mean posttest score of the experimental group is 83.17, while it is only 72.81 in the case of the control group. Hence there is a difference of 10.36 between the mean posttest scores of the experimental and control groups. The critical ratio is 15.967. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 15.967$ ,  $p < 0.01$ ). Hence the difference is statistically significant at 0.01 level. This means that there exists significant difference between the mean scores of posttest of the experimental and control groups.

Since the mean posttest score of experimental group (CBI) is greater than the control group (CMT), the CBI group is better than the CMT group in the level of mastery of competencies in accountancy.

Hence it can be concluded that the Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching in the mastery of competencies in accountancy.

#### **6.1.6.2. Comparison of the Posttest Scores Boys in the Experimental and Control Groups**

The mean posttest scores of the boys in the experimental group and the control group has been computed and compared. The difference in mean scores of posttest has been tested for significance by computing the critical ratio. The data and result are given in the Table 6.12.

**Table 6.12**

**Data and Result of the Test of Significance of the Difference between the Mean Posttest Scores of Boys in the Experimental and Control Groups**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Experimental	<b>58</b>	<b>83.16</b>	<b>6.30</b>	<b>10.14**</b>
Controlled	<b>57</b>	<b>72.56</b>	<b>4.78</b>	

**\*\* Significant at 0.01 level**

Table 6.12 shows that mean posttest score of the boys in the experimental group is 83.16, while it is only 72.56 in the case of their counterpart in the control group. Hence there is a difference of 10.6 between the mean posttest scores of boy of the experimental group and the control group.

From the table it is seen that the critical ratio obtained, when the means posttest scores of boys of the experimental and control groups were compared is 10.14. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  113 ( $t = 10.14$ ,  $p < 0.01$ ). As this value is above the limit set for significance, there exist significant difference between the mean posttest scores boys in the experimental group and the control group. The difference is statistically significant at 0.01 level.

Hence it is concluded that the level of mastery of competencies in accountancy among the boys in the experimental group is greater than the level of mastery of competencies in accountancy among the boys in the control group.

### **6.1.6.3. Comparison of the Posttest Scores Girls in the Experimental and Control Groups**

The mean posttest scores of the girls in the experimental group and the control group has been computed and compared. The difference in mean scores of posttest has been tested for significance by computing the critical ratio. The data and result are given in the Table 6.13.

**Table 6.13**  
**Data and Result of the Test of Significance of the Difference between the Mean Posttest Scores of Girls in the Experimental and Control Groups**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Experimenta l	<b>64</b>	<b>83.19</b>	<b>4.46</b>	<b>12.675**</b>
Controlled	<b>61</b>	<b>73.03</b>	<b>4.49</b>	

**\*\* Significant at 0.01 level**

The Table 6.13 shows that mean posttest score of the girls in the experimental group is 83.19, while it is only 73.03 in the case of their counter part in the control group. Hence there is a difference of 10.16 between the mean posttest scores of girls in the experimental group and the control group.

From the table it is seen that the critical ratio obtained, when means posttest scores of girls of the experimental and control groups were compared is 12.675. The values for significance are 2.62 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  123 ( $t = 12.625$ ,  $p < 0.01$ ). As this value is above the limit set for significance, there exists significant difference between the mean posttest scores of girls in the experimental group and the control group. The

difference is statistically significant at 0.01 level. This means that the difference between the posttest scores of the girls in the experimental group and the control group is not by chance but by the impact of the treatment.

Hence we can rightly conclude that the level of mastery of competencies in accountancy is greater among the girls who learned under Competency Based Instruction than those girls who learned under Conventional Method of Teaching.

#### **6.1.6.4. Comparison of the Posttest Scores of Boys and Girls in the Experimental Group**

The mean posttest scores of the boys and girls in the experimental group has been computed and compared. The difference in mean scores of posttest has been tested for significance by computing the critical ratio. The data and result are given in the Table 6.14

**Table 6.14**

**Data and Result of the Test of Significance of the Difference between the Mean Posttest Scores of Boys and Girls in the Experimental Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Boys	<b>58</b>	<b>83.16</b>	<b>6.30</b>	<b>0.033<sup>#</sup></b>
Girls	<b>64</b>	<b>83.19</b>	<b>4.64</b>	

*# Not Significant*

The Table 6.14 shows that the mean posttest score of the boys in the experimental group is 83.16, while it is 83.19 in the case of girls. Even though there is a small difference of 0.03 between the mean scores of the boys and girls in the experimental group, the difference is not statistically significant.

From the table it is seen that the critical ratio obtained, when means posttest scores of boys and girls of the experimental group were compared is 0.033. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for *df* 120 ( $t = 0.0331$ ,  $p > 0.05$ ). As this value is less than the limit set for significance, there exists no significant difference between the mean posttest scores of boys and girls in the experimental group. This means that the boys and girls in the experimental group do not differ in respect of their mastery of competencies.

Hence we can conclude that the level of mastery of competencies in accountancy is similar among the boys and girls who learned accountancy under the Competency Based Instruction (CBI).

#### **6.1.6.5. Comparison of the Posttest Scores of Boys and Girls in the Control Group**

The mean posttest scores of the boys and girls in the control group has been computed and compared. The difference in mean scores of posttest has been tested for significance by computing the critical ratio. The data and result are given in the Table 6.15

**Table 6.15**

**Data and Result of the Test of Significance of the Difference between the Mean Posttest Scores of Boys and Girls in the Control Group**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Boys	57	72.56	4.78	<b>0.552<sup>#</sup></b>
Girls	61	73.03	4.49	

*# Not Significant*

Table 6.15 shows that mean posttest score of the boys and girls in the control group is 72.56 and 73.03 respectively. Even though there is a small difference of 0.47 between the mean scores of the boys and girls in the control group, the difference is not statistically significant.

From the table it is seen that the critical ratio obtained, when means posttest scores of boys and girls of the experimental group were compared is 0.552. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  116 ( $t = 0.552$ ,  $p > 0.05$ ). As this value is less than the limit set for significance, there exists no significant difference between the mean posttest scores of boys and girls in the control group. This means that the boys and girls in the control group do not differ in respect of their mastery of competencies.

Hence we can conclude that the level of mastery of competencies in accountancy is similar among the boys and girls who learned accountancy under the Conventional Method of Teaching (CMT).

From the analysis of the post test scores of the experimental and control groups we can infer that the competency Based Instruction is more effective in the attainment of mastery of competencies in accountancy among the students compared to the Conventional Method of Teaching. From the analysis it can be also inferred that there the gender differences do not influence the level of mastery of competencies in accountancy among the students in both the experimental and control groups.

### **6.1.7. Comparison of Mean Gain Scores**

The mean and standard deviation of the gain scores of the experimental and control group for the total sample and the various sub samples have been calculated and tested for significance in order to assess the effectiveness of the treatment.

#### **6.1.7.1. Comparison of Gain Scores of the Experimental and Control Groups**

The mean and standard deviation of the gain scores of the experimental and control groups for the total sample have been computed and tested for significance. The data and result of the test of significance of the difference between the mean gain scores of students in the experimental and control groups have been given in the Table No. 6.16

**Table 6.16**

**Data and Result of the Test of Significance of the Difference between the Mean Gain Scores of Students in the Experimental and Control Groups**

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	122	64.19	4.24	<b>17.228**</b>
Controlled	118	53.74	5.13	

**\*\* Significant at 0.01 level**

The Table 6.16 shows that the mean gain score of the experimental group is 64.19 while it is 53.74 in the case of the control group with standard deviation 4.24 and 5.13 respectively. The critical ration found to be 17.228. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels for  $df$  238 ( $t = 17.228$ ,  $p > 0.01$ ). It indicates that the mean gain scores of the experimental group and control group differ significantly. The difference is significant at 0.01 level. It establishes that the experimental group gain more from the instruction compared to the control group.

Since the mean gain score of the CBI group is greater than CMT group, the CBI group is better in the level of mastery of competencies in accountancy. Therefore the conclusion is that the Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching (CMT) in the attainment of mastery of competencies in accountancy.

#### **6.1.7.2. Comparison of Mean Gain Scores of Boys in the Experimental and Control Groups**

The mean and standard deviation of the gain scores of the boys in the experimental and control groups have been computed and tested for significance. The data and result of the test of significance of the difference between the mean gain scores of the boys in the experimental and control groups have been given in the Table No. 6.17.

**Table 6.17**  
**Data and Result of the Test of Significance of the Difference between the Mean Gain Scores of Boys in the Experimental and Control Groups**

Group	N	Mean	S.D	CR
Experimental	58	64.14	4.74	<b>13.027**</b>
Controlled	57	52.98	4.43	

**\*\*** Significant at 0.01 level

The Table 6.17 shows that the mean gain score of the boys of the experimental group is 64.14 and of the control group is 52.98 with standard deviation 4.74 and 5.43 respectively. The critical ration found to be 13.027. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  113 ( $t = 13.027$ ,  $p < 0.01$ ). It indicates that that the difference between the mean gains scores of the boys in the experimental group and control group is significant at 0.01 level. It establishes that the boys in the experimental group gain more from the instruction compared to their counter part in the control group.

### 6.1.7.3. Comparison of Mean Gain Scores of Girls in the Experimental and Control Groups

The mean and standard deviation of the gain scores of the girls in the experimental and control groups have been computed and tested for significance. The data and result of the test of significance of the difference between the mean gain scores of the girls in the experimental and control groups have been given in the Table No. 6.18

**Table 6.18**

**Data and Result of the Test of Significance of the Difference between the Mean Gain Scores of Girls in the Experimental and Control Groups**

Group	N	Mean	S.D	CR
Experimental	64	64.23	3.77	<b>11.451**</b>
Controlled	61	54.44	5.56	

**\*\* Significant at 0.01 level**

The Table 6.18 shows that the mean gain score of the girls in the experimental group is 64.23 and of the control group is 54.44 with standard deviation 3.77 and 5.56 respectively. The critical ration found to be 11.451. The values for significance are 2.62 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  123 ( $t = 11.451$ ,  $p < 0.01$ ). It reveals that that the difference between the mean gain scores of the girls in the experimental group and control group is significant at 0.01 level. It establishes that the girls in the experimental group gain more in terms of mastery of competencies in

accountancy from the instruction compared to their counter part in the control group.

This result is in consistent with the results obtained for the total sample of the experimental and control groups and for the subsample boys of these groups.

#### **6.1.7.4. Comparison of Mean Gain Scores of Boys and Girls of the Experimental Group**

The mean and standard deviation of the gain scores of the boys and girls in the experimental group have been computed and tested for significance. The data and result of the test of significance of the difference between the mean gain scores of the boys and girls in the experimental group has been given in the Table No. 6.19.

**Table 6.19**  
**Data and Result of the Test of Significance of the Difference between the Mean Gain Scores of Boys and Girls of the Experimental Group**

<b>Gender</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Boys	58	64.14	4.74	<b>0.125<sup>#</sup></b>
Girls	64	64.23	3.77	

*# Not Significant*

The Table 6.19 shows that the mean gain scores of the boys in the experimental group is 64.14 with standard deviation 4.74 and of the girls is 64.23 with standard deviation 3.77. The critical ratio is found to be 0.125. The values for significance are 2.62 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  120 ( $t = 0.125, p > 0.05$ ). It indicates that that the meagre difference between the mean gain scores of the boys and girls in the experimental group is not statistically significant. Hence the boys and girls in the experimental group gain more or less equally from the instruction.

#### **6.1.7.5. Comparison of Gain Scores of Boys and Girls of the Control Group**

The mean and standard deviation of the gain scores of the boys and girls in the control group have been computed and tested for significance. The data and result of the test of significance of the difference between the mean gain scores of the boys and girls in the control group has been given in the Table No. 6.20.

**Table 6.20**

#### **Data and Result of the Test of Significance of the Difference between the Mean Gain Scores of Boys and Girls of the Control Group**

<b>Gender</b>	<b>N</b>	<b>Mean</b>	<b>S.D</b>	<b>CR</b>
Boys	57	52.98	4.43	1.555 <sup>#</sup>

Girls	61	54.44	5.56	
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# *Not Significant*

The Table 6.20 shows that the mean gain scores of the boys in the control group is 52.98 with standard deviation 4.43 and of the girls is 54.44 with standard deviation 5.56. The critical ratio is found to be 1.555. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  116 ( $t = 1.555, p > 0.05$ ). It indicates that that the meagre difference between the mean gain scores of the boys and girls in the control is not statistically significant. Hence the boys and girls in the control group gain more or less equally from the Conventional Method of Teaching.

From the analysis of the experimental and control group for the total sample and various sub samples, it can be concluded that the CBI group is better than the CMT group, in the level of mastery of competencies in accountancy. But within the groups there is no significant difference between the boys and girls in respect of the level of mastery of competencies in accountancy.

### **6.1.8. Effectiveness of Instructional Strategies on Various Components of Competency**

After introducing the independent variable, the Competency Based Instruction to the experimental group and Conventional Method of Teaching to the control group, it was found that the experimental group were

better than the control group in their level of mastery of competencies in accountancy. So the investigator concluded that the Competency Based Instruction were more effective than the Conventional Method of Teaching in the mastery of competencies in accountancy.

Though it became apparent that the Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching (CMT) it seems to be necessary to compare the effectiveness in the various elements of competency. It enable the investigator to ascertain whether the Competency Based Instruction is more effective for different elements of competency like cognition, performance etc. Though attitude is another element of competency it has been assessed separately. The details of the element wise analysis are given in the following sections.

#### **6.1.8.1. Cognitive Competencies**

This section gives a picture of the analysis of the mastery scores in accountancy of the students in the experimental group (CBI) and control group (CMT) in respect of cognitive competencies.

##### **6.1.8.1.1. Distribution of Pretest Scores of Mastery of Cognitive Competencies**

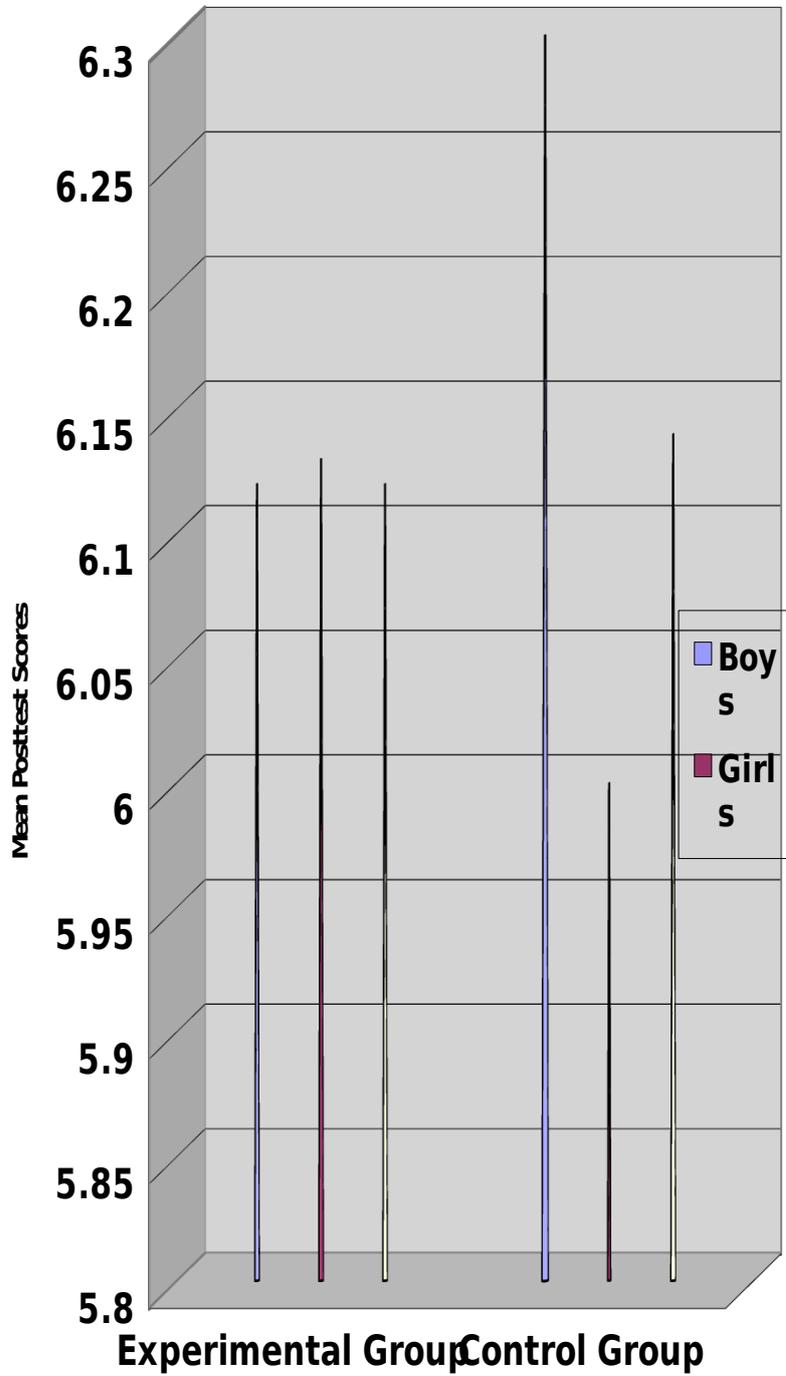
The statistical measures like mean, median, standard deviation and skewness were computed for the pretest scores of the mastery of cognitive competencies of the control (CMT) and experimental (CBI) groups to compare the achievement scores of these group in the ensuing analysis. The details are presented in the Table 6.21. The graphical representation of the same is given in Figure 6.8.

**Table 6.21**  
**Measures of Central Tendency and Dispersion of Pretest Scores in**  
**Mastery of Cognitive Competencies**

Group compared		Max. Score	N	Mean	Median	$\sigma$	Skewness
<b>Experimental</b>	Boys	30	58	6.12	6	0.73	0.377
	Girls	30	64	6.13	6	0.85	0.407
	<b>Total</b>	<b>30</b>	<b>122</b>	<b>6.12</b>	<b>6</b>	<b>0.79</b>	<b>0.396</b>
<b>Control</b>	Boys	30	57	6.30	6	0.80	-0.384
	Girls	30	61	6.00	6	0.68	0.324
	<b>Total</b>	<b>30</b>	<b>118</b>	<b>6.14</b>	<b>6</b>	<b>0.75</b>	<b>-0.002</b>

**Fig. 6.8**

### Pretest Scores in Mastery of Cognitive Competencies



The Table 6.21 reveals that the measures of central tendency- mean and median of the pretest scores of the experimental and control group for the total sample and the sub samples in respect of mastery of cognitive competencies are almost equal. The mean pretest scores of the experimental and control group in respect of cognitive competencies are 6.12 and 6.14 respectively with standard deviation of 0.798 and 0.75. The standard deviations are comparatively small which suggests that the scores are not deviating widely from the measures central tendencies.

The mean pretest scores in respect of the cognitive competencies for the various subsamples in the experimental group and control group are almost equal. The mean pretest scores in cognitive competencies for the boys and girls of the experimental group are 6.12 and 6.13 respectively while it is 6.30 and 6 in the case of control group.

This shows that the experimental and control groups and the subgroups are almost equal in respect of their mastery of cognitive competencies in accountancy before the treatment.

#### **6.1.8.1.2. Distribution of Posttest Scores of Mastery of Cognitive Competencies**

The statistical measures like mean, median, standard deviation and skewness were computed for the posttest scores of the mastery of cognitive competencies of the control (CMT) and experimental (CBI) groups to compare the achievement scores of these group in the ensuing analysis. The

details are presented in the Table 6.22. The graphical representation of the same is given in Figure 6.9.

**Table 6.22**

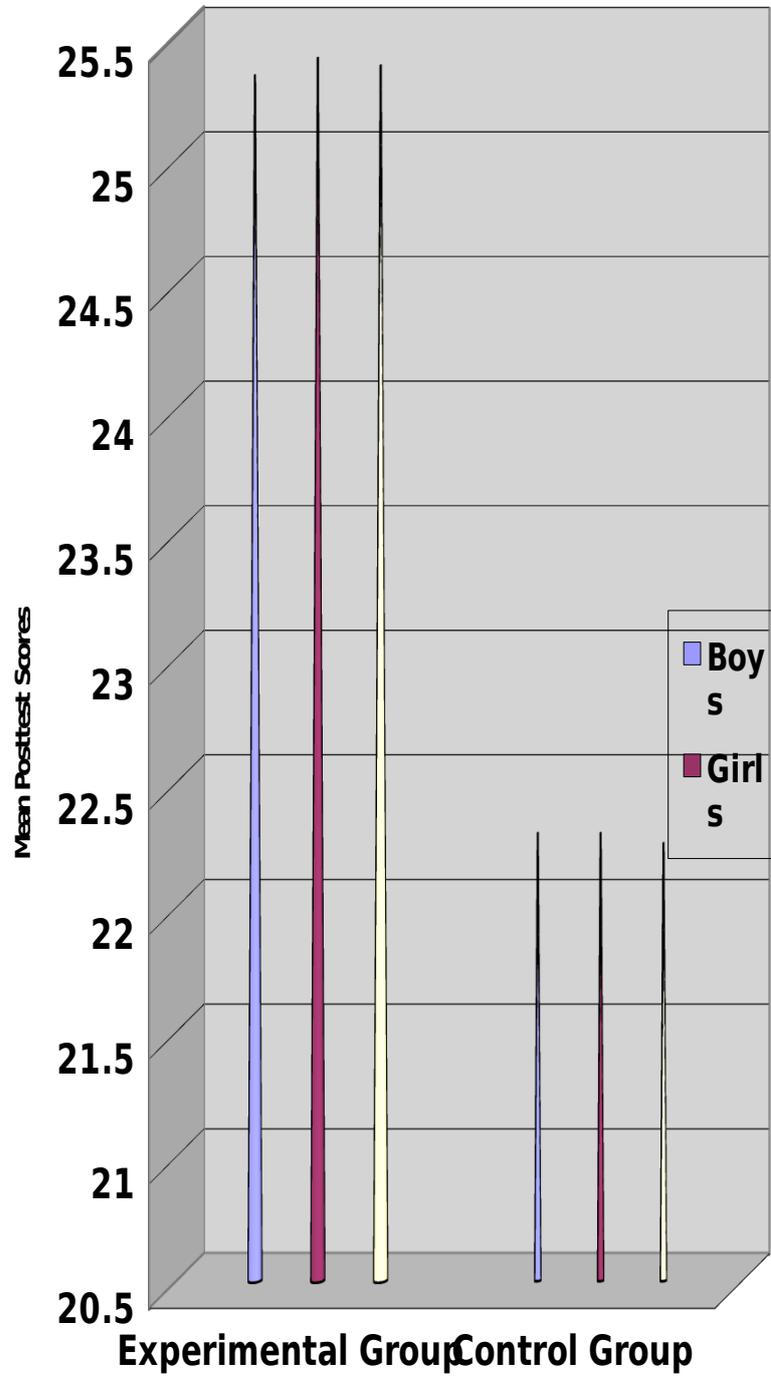
**Measures of Central Tendency and Dispersion of Posttest Scores in  
Mastery of Cognitive Competencies**

Group compared		Max. Score	N	Mean	Median	$\sigma$	Skewness
<b>Experimental</b>	Boys	30	58	25.34	25	1.89	-0.423
	Girls	30	64	25.41	25	1.38	-0.438
	<b>Total</b>	<b>30</b>	<b>122</b>	<b>25.38</b>	<b>25</b>	<b>1.63</b>	<b>-0.454</b>
<b>Control</b>	Boys	30	57	22.30	23	1.45	-0.202
	Girls	30	61	22.30	23	1.41	-0.727
	<b>Total</b>	<b>30</b>	<b>118</b>	<b>22.26</b>	<b>22</b>	<b>1.44</b>	<b>-0.455</b>

The Table 6.21 reveals that the measures of central tendency- mean and median of the posttest scores of the experimental and control group for the total sample and the sub samples in respect of mastery of cognitive competencies differ. The mean pretest scores of the experimental and control group in respect of cognitive competencies are 25.38 and 22.26 respectively with standard deviation of 1.13 and 1.44. Hence the mean posttest scores of experimental group (CBI) is better than the scores of the control group (CMT).

**Fig. 6.9**

## Posttest Scores in Mastery of Cognitive Competencies



The mean pretest scores in respect of the cognitive competencies in accountancy for the subsamples (i.e. boys and girls) in the experimental group are also exhibiting better performance while comparing with the corresponding subsamples in the control group. Hence we can tentatively conclude that the experimental group (CBI) is more effective in respect of the level of mastery of cognitive competencies in accounting while comparing with the control group (CMT).

#### **6.1.8.1.3. Comparison of the Effectiveness of Competency Based Instruction with the Conventional Method of Teaching on the Mastery of Cognitive Competencies in Accountancy**

The scores obtained by the 240 students in the control and experimental groups for the pretest and post test in respect of mastery of cognitive competencies in accountancy were subject to further analysis using t test to find out whether any significant difference existed in the effectiveness of these two instructional approaches. The results of the test of significance of difference between the mean scores of mastery of cognitive competencies in accountancy by the

students in the experimental and control group in both the pretest and posttest are presented in the Table 6.23.

**Table 6.23**  
**Summary of the test of Significance of Difference**  
**between the Means Pretest and Posttest Scores for**  
**the Experimental and Control Group in the Mastery of**  
**Cognitive Competencies**

Test	Group	N	Mean	S D	C R
Pretest	Experimental	122	6.12	0.79	0.212
	Controlled	118	6.14	0.75	
Post test	Experimental	122	25.38	1.63	15.648**
	Controlled	118	22.26	1.44	

\*\* *Significant at 0.01 level*

The Table 6.23 show the summary of the test of significance of differences between the means pretest and posttest scores for the experimental and control group in the mastery of cognitive competencies. From the table it can be observed that the critical value for the mean pretest scores in the mastery of cognitive competencies for the experimental and control group is 0.212. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 0.212$ ,  $p > 0.05$ ). Hence it can be concluded that

the experimental and control group does not differ significantly in respect of the mastery of cognitive competencies before the treatment.

The Table 6.23 also reveals that the critical value for the mean posttest scores in the mastery of cognitive competencies for the experimental and control group is 15.648. Since the values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 5.648$ ,  $p < 0.01$ ), it can be rightly concluded that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of cognitive competencies. As the mean posttest score of the mastery of cognitive competencies for the experimental group (CBI) is higher than that of the control group (CMT), we can confidently conclude that the competency based instruction is more effective in respect of the mastery cognitive competencies in accountancy. The difference is statistically significant at 0.01 level.

#### **6.1.8.1.4. Comparison of the Effectiveness of Competency Based Instruction and the Conventional Method of Teaching on the Mastery of Cognitive Competencies in Accountancy among the Various Subsamples**

The comparison of the effectiveness of Competency Based Instruction and the conventional method of teaching on the mastery of cognitive competencies in accountancy for the total sample reveals that they differ significantly in the posttest scores, which indicates the superiority of the Competency Based Instruction in the attainment of mastery in cognitive competencies in accountancy. Here analysis has been made to compare the

effectiveness of Competency Based Instruction in the mastery of cognitive competencies in accountancy for the various subsamples. The result of the test of significance of difference between the mean scores of mastery of cognitive competencies in accountancy by the students in the experimental group and the control group in the pretest and posttest are presented in the Table 6.24.

**Table 6.24**

**Summary of the test of Significance of Difference between the Means Pretest and Posttest Scores of Different Subsamples in the Experimental and Control Group in the Mastery of Cognitive Competencies**

Group compared		Experimental			Control			C R
		N	M	$\sigma$	N	M	$\sigma$	
Pretest	Boys	58	6.12	0.73	57	6.30	0.80	<b>1.245</b>
	Girls	64	6.13	0.83	61	6.30	0.68	<b>0.907</b>
Posttest	Boys	58	25.34	1.89	57	22.30	1.45	<b>9.852**</b>
	Girls	64	25.41	1.38	61	22.30	1.41	<b>12.444**</b>

**\*\* Significant at 0.01 level**

The Table 6.24 show the summary of the test of significance of difference between the means pretest and posttest scores of different subsamples in the experimental and control group in the mastery of cognitive

competencies. From the table it can be observed that the critical ratio obtained for the test of significance of difference between the mean pretest scores of mastery of cognitive competencies in accountancy for the subsamples of boys and girls of the experimental and control groups reflect that they did not differ significantly. The critical ratio obtained is 1.245 for the boys of the experimental and control groups and 0.907 for the girls of the experimental and control groups ( $t = 1.254$  &  $t = 0.907$ ,  $p > 0.05$ ). So there is no significant difference between boys and girls in respect of the level of mastery of cognitive competencies in accountancy before the treatment in both the experimental and control groups.

But the critical ratio obtained for the test of significance of difference between the mean posttest scores of mastery of cognitive competencies in accountancy for the subsamples of boys and girls of the experimental and control groups exhibit a significant difference. The critical ratio calculated are 9.852 for the boys of the experimental and control groups and 12.444 for the girls of the experimental and control groups. These values are more than the table value of 't', and hence there is statistically significant difference between the mean post test scores of mastery of cognitive competencies in accountancy for the boys of the control and experimental groups ( $t = 9.852$ ,  $p < 0.01$ ). In the same way the difference between the mean post test scores of mastery of cognitive competencies in accountancy for the girls of the control and experimental groups is also statistically significant at 0.01 level ( $t = 12.444$ ,  $p < 0.01$ ).

These results are in conformity with the result obtained for the total sample. Hence it substantiates the argument that the Competency Based Instruction (CBI) is more effective in respect of the mastery of cognitive competencies in accountancy compared to the Conventional Method of Teaching (CMT).

### **6.1.8.2. Performance Competencies**

This section gives the analysis of the scores of the mastery of performance competencies in accountancy of the students in the experimental group (CBI) and control group (CMT).

#### **6.1.8.2.1. Distribution of Pretest Scores of Mastery of Performance Competencies**

The statistical measures like mean, median, standard deviation and skewness were computed for the pretest scores of the mastery of performance competencies of the control (CMT) and experimental (CBI) groups to compare the mastery scores of these group in the ensuing analysis. The details are presented in the Table 6.25. The same has presented graphically in Figure 6.10.

**Table 6.25**  
**Measures of Central Tendency and Dispersion of Pretest Scores in**  
**Mastery of Performance Competencies**

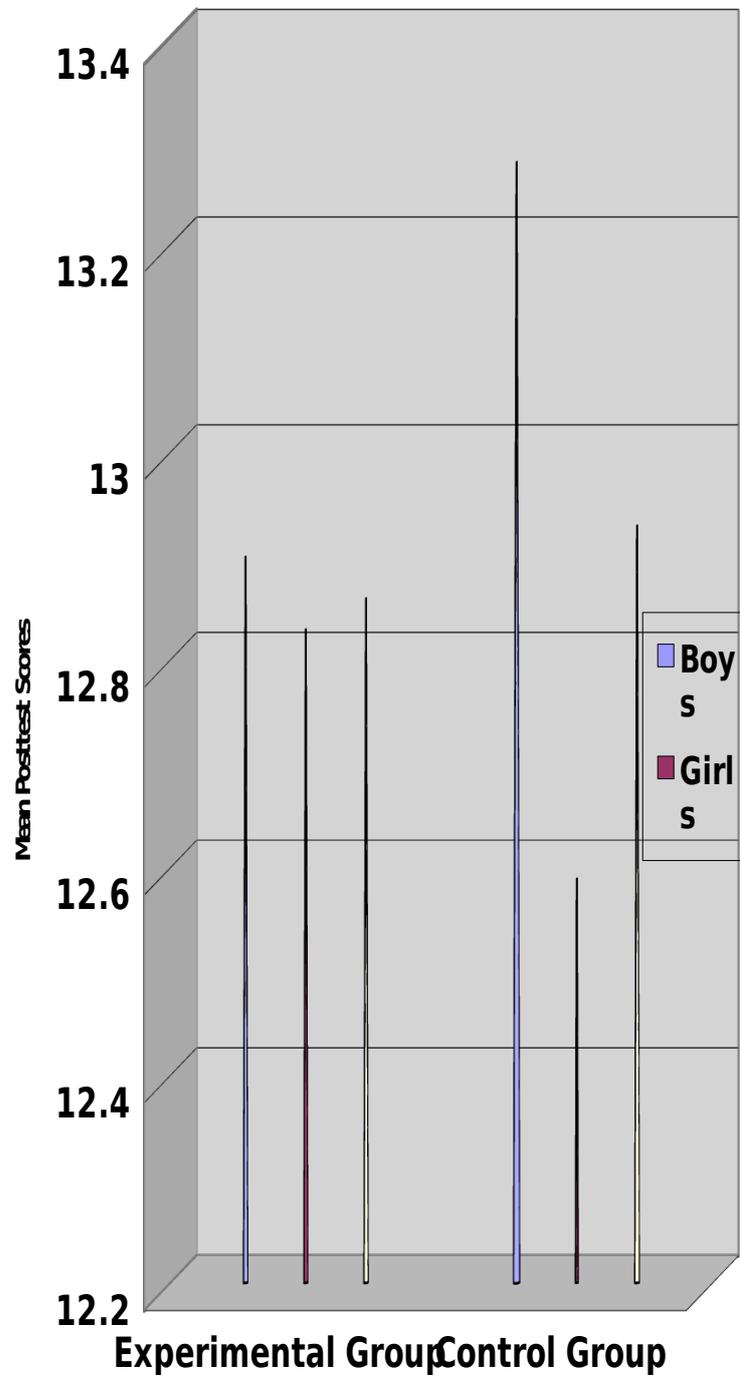
Group compared		Max. Scores	N	Mean	Median	$\sigma$	Skewness
<b>Experime</b>	Boys	70	58	12.90	13	1.95	-0.172
	Girls	70	64	12.83	13	2.17	0.103

<b>ntal</b>	<b>Total</b>	<b>70</b>	<b>122</b>	<b>12.86</b>	<b>13</b>	<b>2.06</b>	<b>-0.011</b>
<b>Control</b>	Boys	70	57	13.28	14	2.00	-0.528
	Girls	70	61	12.59	13	1.83	0.113
	<b>Total</b>	<b>70</b>	<b>118</b>	<b>12.92</b>	<b>13</b>	<b>1.94</b>	<b>-0.178</b>

The Table 6.25 reveals that the measures of central tendency- mean and median of the pretest scores of the experimental and control group for the total sample and the subsamples in respect of mastery of performance competencies are almost equal. The mean pretest scores of the experimental and control group in respect of cognitive competencies are 12.86 and 12.96 respectively with standard deviation of 2.06 and 1.94. The standard deviations are comparatively small which suggests that the scores are not deviating widely from the measures central tendencies.

**Fig. 6.10**

### Pretest Scores in Mastery of Performance Competencies



The mean pretest scores in respect of mastery of the performance competencies in accountancy for the various

subsamples in the experimental group and control group are almost equal. The mean pretest scores in performance competencies for the boys and girls of the experimental group are 12.90 and 12.83 respectively while it is 13.28 and 12.59 in the case of control group.

This shows that the total sample and subsamples of the experimental and control groups are almost equal in respect of their mastery of performance competencies in accountancy before the treatment.

#### **6.1.8.2.2. Distribution of Posttest Scores of Mastery in Performance Competencies**

The statistical measures like mean, median, standard deviation and skewness were computed for the posttest scores of the mastery of performance competencies in accountancy for the control group (CMT) and the experimental group (CBI) to compare the mastery scores of these groups in the ensuing analysis. The details are presented in the Table 6.26. The graphical representation of the same is given in the Figure 6.11.

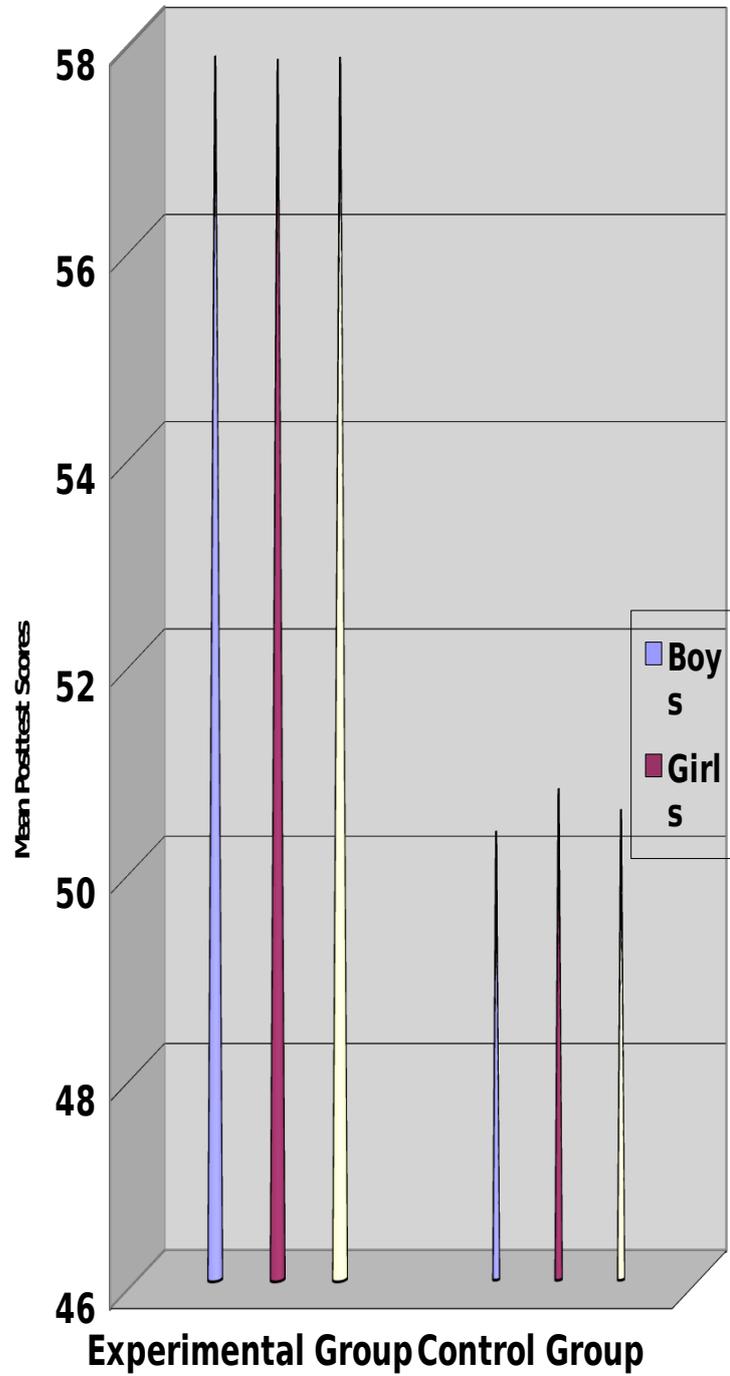
**Table 6.26**  
**Measures of Central Tendency and Dispersion of Posttest Scores in**  
**Mastery of Performance Competencies**

Group compared		Max. Scores	N	Mean	Median	$\sigma$	Skewness
<b>Experimental</b>	Boys	70	58	57.81	58	4.45	-0.118
	Girls	70	64	57.78	58	3.12	-0.597
	<b>Total</b>	<b>70</b>	<b>122</b>	<b>57.80</b>	<b>58</b>	<b>3.79</b>	<b>-0.307</b>
<b>Control</b>	Boys	70	57	50.33	50	3.33	-0.147
	Girls	70	61	50.74	51	3.11	-0.862
	<b>Total</b>	<b>70</b>	<b>118</b>	<b>50.54</b>	<b>51</b>	<b>3.21</b>	<b>-0.485</b>

Table 6.26 gives that the measures of central tendency- mean and median of the posttest scores of the experimental and control group for the total sample and the sub samples in respect of mastery of performance competencies in accountancy. The mean pretest scores of the experimental and control group in respect of performance competencies are 57.80 and 50.54 respectively with standard deviation of 3.79 and 3.21. Hence the mean posttest score of experimental group (CBI) is better than the mean posttest score of the control group (CMT).

**Fig. 6.11**

### Posttest Scores in Mastery of Performance Competencies



The mean pretest scores in respect of the performance competencies for the subsamples (i.e. boys and girls) in the experimental group are also exhibiting better performance while comparing with the corresponding subsamples in the control group. The mean posttest scores of mastery of the performance competencies in accountancy for the boys and girls of the experimental group are 57.81 and 75.78 respectively, while it is 50.33 and 50.74 in the case of control group. Hence we can tentatively conclude that the experimental group (CBI) is more effective in respect of the level of mastery of performance competencies in accountancy while comparing with the control group (CMT).

#### **6.1.8.2.3. Comparison of the Effectiveness of Competency Based Instruction (CBI) with the Conventional Method of Teaching (CMT) for the Mastery of Performance Competencies in Accountancy**

The scores obtained by the 240 students of the control and experimental groups for the pretest and posttest in respect of mastery of performance competencies in accountancy were subject to further analysis using 't' test to find out whether any significant difference existed in the effectiveness of these two instructional approaches. The summary of the test of significance of difference between the means pretest and posttest scores for the experimental and control group in the mastery of performance competencies are given in Table 6.27.

**Table 6.27**

**Summary of the test of Significance of Difference between the Means  
Pretest and Posttest Scores for the Experimental and Control Group in  
the Mastery of Performance Competencies**

<b>Test</b>	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Pretest	Experimental	122	12.86	2.06	<b>0.244</b>
	Controlled	118	12.92	1.94	
Post test	Experimental	122	57.80	3.79	<b>15.963**</b>
	Controlled	118	50.54	3.21	

\*\* Significant at 0.01 level

The Table 6.27 show the summary of the test of significance of differences between the means pretest and posttest scores for the experimental and control group in the mastery of performance competencies in accountancy. From the table it can be observed that the critical value for the mean pretest score in the mastery of performance competencies for the experimental and control group is 0.244. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 0.244$ ,  $p > 0.05$ ). Hence it can be concluded that the experimental and control group does not differ significantly in respect of the mastery of performance competencies in accountancy before the treatment.

The Table 6.27 also reveals that the critical value for the mean posttest score in the mastery of performance competencies in accountancy for the experimental and control group is 15.963. Since the values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 15.963$ ,

$p < 0.01$ ), it can be rightly concluded that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of performance competencies. As the mean posttest score of the mastery of performance competencies for the experimental group (CBI) is higher than that of the control group (CMT), we can confidently conclude that the competency based instruction is more effective in the mastery of performance competencies in accountancy. The difference is statistically significant at 0.01 level.

#### **6.1.8.2.4. Comparison of the Effectiveness of Competency Based Instruction with the Conventional Method of Teaching for the Mastery of Performance Competencies in Accountancy among the Various Subsamples**

In order to compare the effectiveness of Competency Based Instruction in the mastery of performance competencies in accountancy the test for significance of difference between means has been performed. The summary of the test of significance of difference between the means pretest and posttest scores of different subsamples in the experimental and control group in the mastery of performance competencies is given in the Table No. 6.28.

**Table 6.28**

#### **Summary of the test of Significance of Difference between the Means Pretest and Posttest Scores of Different Subsamples in the Experimental and Control Group in the Mastery of Performance Competencies**

<b>Group compared</b>	Experimental	Control	
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		<b>N</b>	<b>M</b>	<b><math>\sigma</math></b>	<b>N</b>	<b>M</b>	<b><math>\sigma</math></b>	<b>C R</b>
Pretest	Boys	58	12.90	1.95	57	13.28	2.00	<b>1.043</b>
	Girls	64	12.83	2.17	61	12.59	1.83	<b>0.661</b>
Posttest	Boys	58	57.81	4.45	57	50.33	3.33	<b>10.188**</b>
	Girls	64	57.78	3.12	61	50.74	3.11	<b>12.641**</b>

**\*\* Significant at 0.01 level**

Table 6.28 shows the summary of the test of significance of difference between the means pretest and posttest scores of different subsamples in the experimental and control group in the mastery of performance competencies in accountancy. From the table it can be observed that the critical ratio obtained for the test of significance of difference between the mean pretest scores of mastery of performance competencies in accountancy for the subsamples of boys and girls of the experimental and control groups reflect that they did not differ significantly. The critical ratio calculated are 1.043 for the boys of the experimental and control groups and 0.661 for the girls of the experimental and control groups. ( $t = 1.043$  &  $t = 0.661$ ,  $p > 0.05$ ). So there is no significant difference between boys and girls in respect of the level of mastery of performance competencies in accountancy before the treatment.

But the critical ratio obtained for the test of significance of difference between the mean posttest scores of mastery of cognitive competencies in accountancy for the subsamples of boys and girls of the experimental and

control groups exhibit a significant difference. The critical ratio calculated are 10.188 for the boys of the experimental and control groups and 12.641 for the girls of the experimental and control groups. These values are more than the table value of 't' , and hence there is statistically significant difference between the mean posttest scores of mastery of cognitive competencies in accountancy for the boys of the control and experimental groups ( $t = 10.188$ ,  $p < 0.01$ ). In the same way the difference between the mean post test scores of mastery of cognitive competencies in accountancy for the girls of the control and experimental groups is also statistically significant at 0.01 level ( $t = 12.641$ ,  $p < 0.01$ ).

These results are in conformity with the result obtained for the total sample. Hence it substantiates the argument that the Competency Based Instruction (CBI) is more effective in respect of the mastery of competencies in accountancy compared to Conventional Method of Teaching (CMT).

## **6.2. INSTRUCTIONAL STRATEGIES AND THE EXTENT OF MASTERS**

In order to evaluate the effectiveness of Competency Based Instruction in the attainment of mastery level learning in accountancy, the extent of masters in each group i.e. in the experimental group (CBI) and the control group(CMT) has been ascertained and compared for significance. The extent of students who attained mastery of the competencies in accountancy is an important indicator of the effectiveness of the instructional strategy. Hence the number and percentage of students who became masters in the

competencies in accountancy as a whole and for each category were calculated and compared.

### **6.2.1. Extent Masters in the Experimental and Control Groups**

The number of students who attained the mastery level leaning in accountancy as a whole and in each category of competencies in accountancy for the total samples and the various subsamples in the experimental group and the control group has been ascertained and compared. The results are presented in the Table 6.29. The graphical representation of the same is given in the Figure 6.12.

**Table 6.29**  
**Extent of Students attained Mastery of Competencies in the Experimental and Control Group**

Group	N	Masters			
		Cognitive Competencies	Performance Competencies	Total	
Experimental	Boys	58	52 (89.65)	50 (86.20)	<b>51 (87.93)</b>
	Girls	64	57 (89.06)	58 (90.62)	<b>57 (89.06)</b>

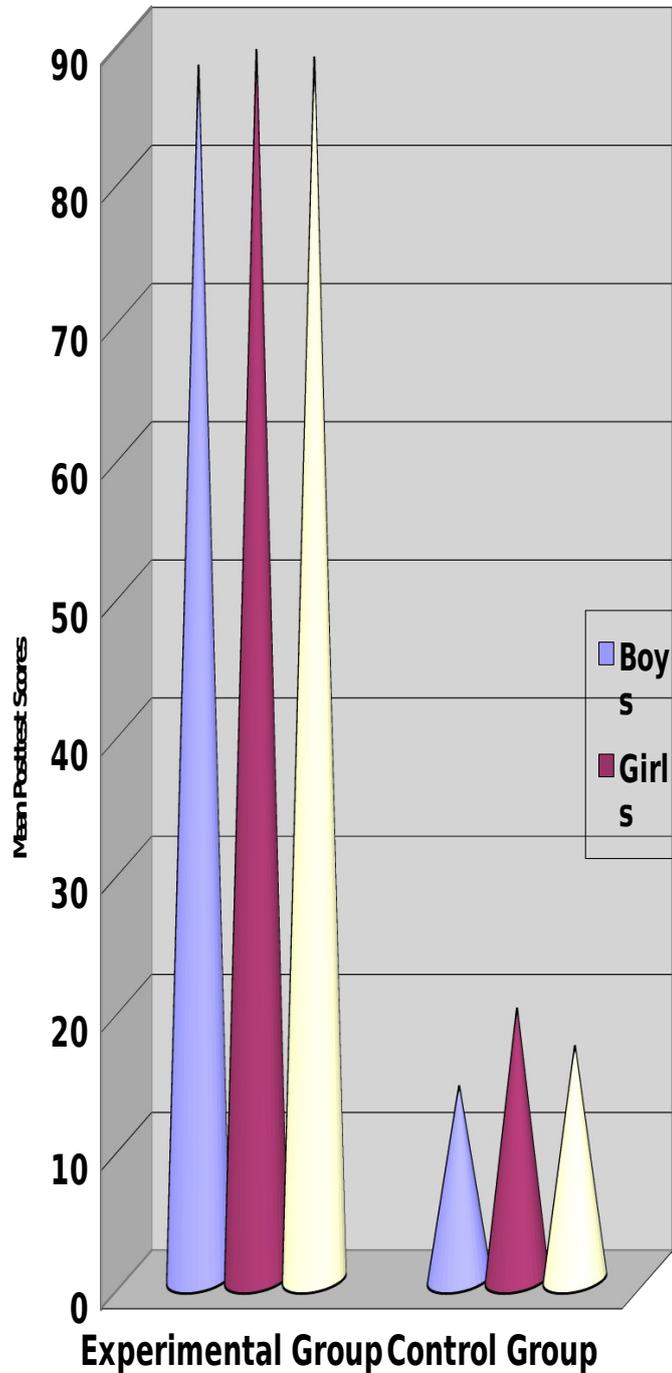
	<b>Total</b>	<b>122</b>	<b>109 (89.34)</b>	<b>108 (88.52)</b>	<b>108 (88.52)</b>
<b>Control</b>	<b>Boys</b>	57	8 (14.04)	8 (14.04)	<b>8 (14.04)</b>
	<b>Girls</b>	61	11 (18.03)	12 (19.67)	<b>12 (19.67)</b>
	<b>Total</b>	<b>118</b>	<b>19 (16.10)</b>	<b>20 (16.95)</b>	<b>20 (16.95)</b>

*\* Numbers within bracket indicate percentages*

From the Table 2.29 we can see the number of students who have attained mastery level learning in accountancy as a whole and in each element of competency, i.e. cognitive and performance competencies. The percentages are given in the brackets.

**Fig. 6.12**

### Percentage of masters in the Experimental and Control Group



#### 6.2.1.1. Extent of Masters of Cognitive Competencies in Accountancy

From the Table 6.29 we can see the number and percentage of students who have mastered Cognitive Competencies in accountancy from the experimental and control groups.

In the experimental group (CBI), 89.65% of students have attained mastery level learning in cognitive competencies in accountancy. This is only 16.10 % in the case of students in the control group (CMT).

When we observe the percentage of boys who have attained mastery level learning in the cognitive competencies in accountancy, it is 89.65% in respect of the experimental group (CBI) while it is only 14.04 % for the control group (CMT).

The number of girls who have attained mastery level learning in the cognitive competencies in accountancy is 89.06% in respect of the experimental group (CBI) while it is only 18.03% for the control group (CMT).

#### **6.2.1.2. Extent of Masters of Performance Competencies in Accountancy**

The Table 6.29 shows the number and percentage of students who have mastered the performance competencies in accountancy. It can be observed that from the experimental group (CBI), 88.52% of students have attained mastery level learning in the performance competencies in accountancy. This is only 16.95 % in the case of students in the control group (CMT).

When we observe the percentage of boys who have attained mastery level learning in the performance competencies in accountancy, it is 86.20% in respect of the experimental group (CBI) while it is only 14.04 % for the control group (CMT).

The number of girls who have attained mastery level learning in the cognitive competencies in accountancy is 90.62% in respect of the experimental group (CBI) while it is only 19.67% for the control group (CMT).

### **6.2.1.3. Extent of Masters of Competencies in Accountancy**

In the experimental group (CBI) 108 (i.e. 88.52%) students have attained mastery level learning in accountancy. This is only 16.95 % in the case of students in the control group (CMT). This reflects that the experimental group have excelled the control group in respect of the percentage of students (i.e. masters) in the attainment of mastery of competencies in accountancy.

When we observe the percentage of boys who have attained mastery level learning in accountancy, it is 87.93 % in respect of the experimental group (CBI) while it is only 14.04 % for the control group (CMT).

The percentage of girls who have attained mastery level learning in accountancy is 89.06% in of the experimental group (CBI), while it is only 19.67 % for the control group (CMT).

The analysis of the mastery level learning in accountancy for the total samples and the various subsamples of the experimental and control group shows consistent results.

It sheds lights to the fact that Competency Based Instruction is more effective in the mastery of competencies in accountancy. The percentage of masters of competencies in accountancy and the various elements of competencies are very high in the experimental group (CBI) compared to the control group (CMT).

### **6.2.2. Comparison of Percentages of Masters in Experimental and Control Group**

In order to verify whether the percentage of students mastered the competencies in accountancy, the test of significance of difference between percentages has been performed. The data and results of the test of significance of difference between percentages are presented separately for the cognitive competencies, performance competencies and the whole competencies in accountancy in the Table 6.30.

**Table 6.30**

**Data and Result of the Test of Significance of Difference between Percentages of Masters in Experimental and Control Group**

<b>Competencies</b>	<b>Experimental Group</b> N =122	<b>Control Group</b> N=118	<b>C R</b>
<b>Cognitive</b>	89.34	16.10	<b>10.901**</b>
<b>Performance</b>	88.52	16.95	<b>10.882**</b>
<b>Total</b>	88.52	16.95	<b>10.822**</b>

**\*\* Significant at 0.01 level**

The Table 6.30 give the result of the test of significance of difference between the percentages of the number of master in competencies in accountancy in the experimental (CBI) and control (CMT) groups.

The critical value obtained for the difference between percentage of masters in the experimental group and control group in respect of the total competencies is 10.882. The table values of 't' for 239 *df* are 1.97 and 2.595 at 0.05 and 0.01 levels of significance. Hence the CR is significant at 0.01 level ( $t = 10.882, p < 0.01$ ). This means that the difference between the percentage of masters in the experimental group (CBI) and control group (CMT) are statistically significant.

The critical value obtained in respect of the percentages of masters in cognitive and performance competencies are 10.901 and 10.882 respectively. As these obtained values of t is also above the table value we can conclude that the difference between the percentages of masters in experimental and control groups in respect of cognitive and performance competencies are also statistically significant at 0.01 level ( $t = 10.901$  &  $t = 10.881, p < 0.01$ )

From the above discussion it can be rightly conclude that the Competency Based Instruction and Conventional Method of teaching differ significantly in respect of the mastery of of competencies in accountancy by the students. As the percentage of masters in the experimental group is very high compared to the percentage of masters in the control group it establishes that the competency based instruction is more effective in the attainment of mastery of competencies in accountancy by the students.

### **6.3. INSTRUCTIONAL STRATEGIES AND ATTITUDE TOWARDS ACCOUNTANCY**

In order to ascertain the whether the instructional strategies influence the attitude of the students toward the subject accountancy, an attitude scale has been administered to the students in the experimental and control groups before and after the treatment. The details of the students' attitude towards accountancy of the experimental and control groups for the total sample and the subsamples have been presented in the following sections.

#### **6.3.1. Distribution of Pretest Scores of Attitude towards Accountancy**

The pretest scores of the attitude toward accountancy of the students in the experimental and the control groups for the total sample and the various subsamples are presented in the Table 6.31.

**Table 6.31**

**Measures of Central Tendency and Dispersion of Scores (Pretest) of Attitude towards Accountancy of Experimental and Control Group**

<b>Group</b>	<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>Median</b>	<b>SD</b>	<b>Skewness</b>
--------------	----------	--------------	-------------	---------------	-----------	-----------------

Experimental	Boys	58	15	46.91	46	3.68	0.311
	Girls	64	15	46.36	46	3.9	0.356
	<b>Total</b>	<b>122</b>	<b>15</b>	<b>46.62</b>	<b>46</b>	<b>3.79</b>	<b>0.219</b>
Control	Boys	57	15	47.02	47	3.65	0.273
	Girls	61	15	46.85	46	3.59	0.384
	<b>Total</b>	<b>118</b>	<b>15</b>	<b>46.93</b>	<b>46</b>	<b>3.6</b>	<b>0.223</b>

The Table 6.31 reveals that the mean pretest score of attitude towards accountancy for the experimental group is 46.62 with a standard deviation of 3.79. The mean attitude scores in the pretest for the boys and girls of the experimental group are 46.91 and 46.36 respectively with standard deviations 3.68 and 3.9.

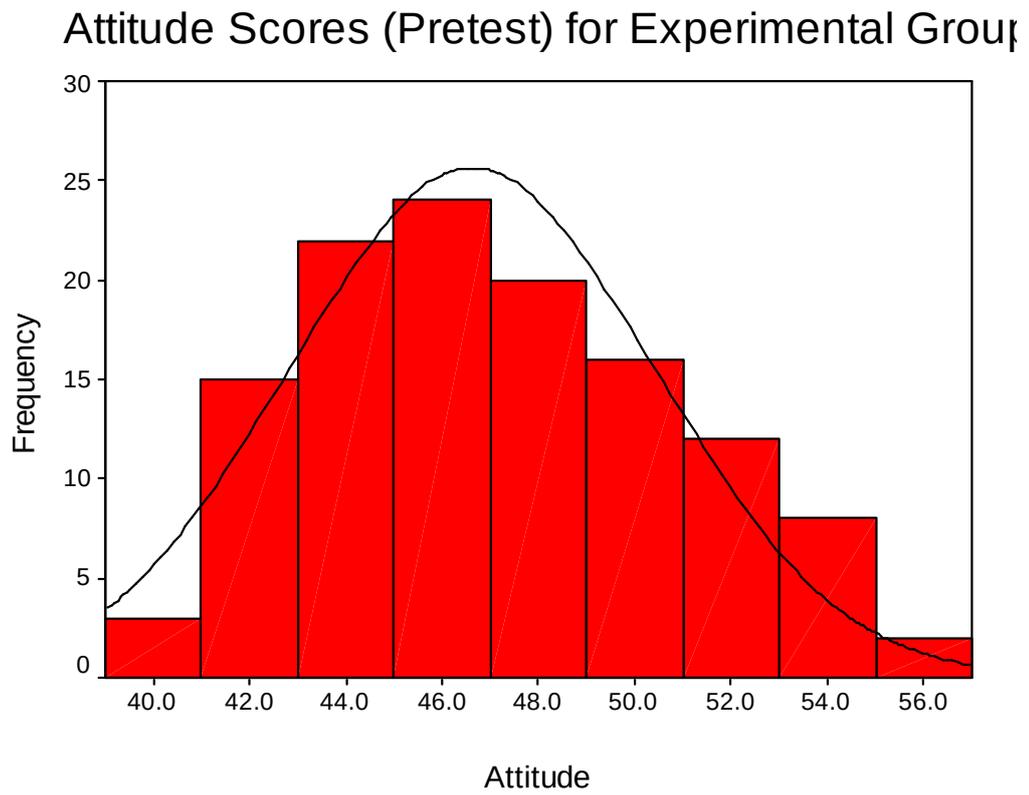
The mean pretest score of attitude towards accountancy of the control group is 46.93 with standard deviation 3.6. The mean attitude scores in the

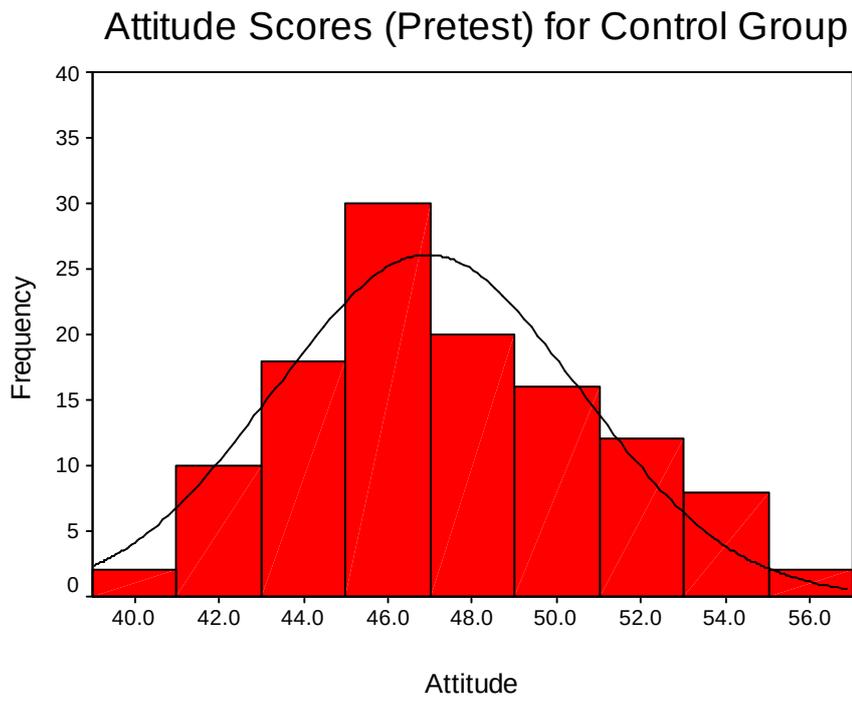
pretest for the boys and girls of the control group are 47.02 and 46.85 respectively with standard deviation 3.65 and 3.59.

From the details given in the Table 6.31 we can infer that the levels of attitude towards accountancy among the various samples are almost equal. The students of the control group and the experimental group have more or less similar attitude towards accountancy.

The frequency curves and the graphs drawn for the distribution of the pretest scores of attitude towards accountancy for the experimental group and the control group have been presented graphically in the Figures 6.13 and 6.14 respectively. The mean attitude scores in the pretest for the experimental group and the control group for the total samples and the subsamples have been graphically presented in the Figure 6.15

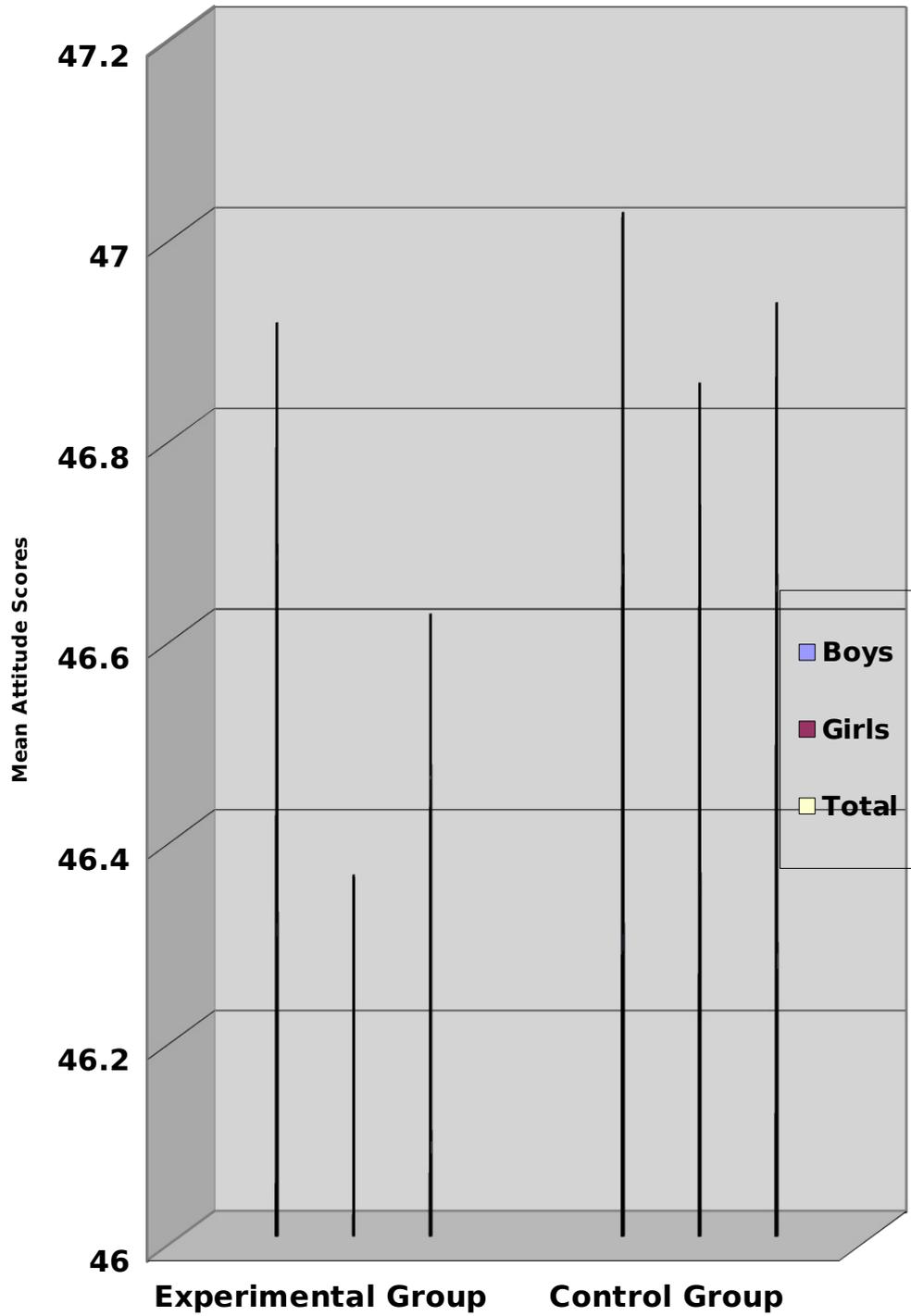
**Fig. 6.13**

**Fig. 6.14**



**Fig. 6.15**

**Mean Attitude Scores (Pretest) of Experimental and Control Group**



### 6.3.2. Distribution of Posttest Scores of Attitude towards Accountancy

The posttest scores of the attitude towards accountancy of the students in the experimental group and the control group for the total sample and the various subsamples were obtained and the same have been presented in the Table 6.32.

**Table 6.32**

#### Measures of Central Tendency and Dispersion of Scores (Posttest) of Attitude towards Accountancy of Experimental and Control Group

<b>Group</b>		<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>Median</b>	<b>SD</b>	<b>Skewness</b>
Experimental	Boys	58	21	75.74	75	5.34	0.312
	Girls	64	25	74.95	75	6.07	-0.078
	<b>Total</b>	<b>122</b>	<b>25</b>	<b>75.33</b>	<b>75</b>	<b>5.72</b>	<b>0.042</b>
Control	Boys	57	29	64.98	64	6.84	-0.177
	Girls	61	31	63.85	64	6.61	0.330
	<b>Total</b>	<b>118</b>	<b>31</b>	<b>64.40</b>	<b>64</b>	<b>6.72</b>	<b>0.079</b>

The table 6.32 reveals that the mean score of attitude towards accountancy for the experimental group is 75.33 with a standard deviation of 5.72. The mean attitude scores of the boys and girls of the experimental group are 75.74 and 74.95 respectively with standard deviations 5.34 and 6.07.

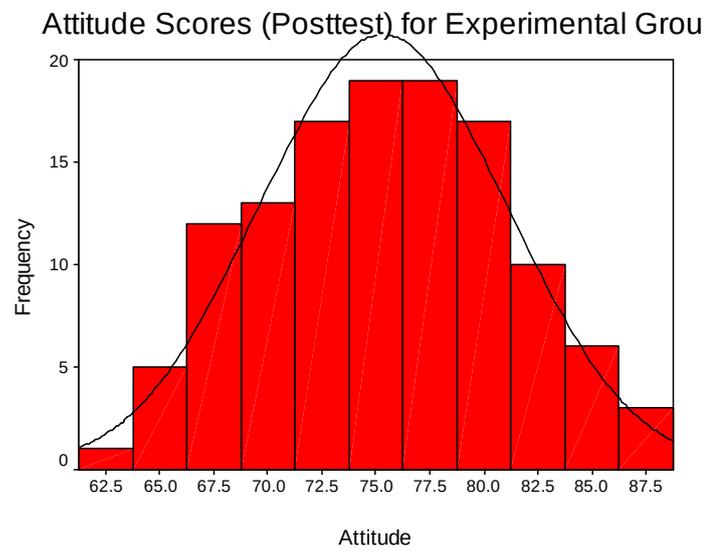
The mean score of attitude towards accountancy of the control group is 64.40 with standard deviation 6.72. The mean attitude scores of the boys and girls of the control group are 64.98 and 63.85 respectively with standard deviation 6.84 and 6.61.

The frequency curves and the graphs drawn for the distribution of the posttest scores of attitude towards accountancy for the experimental group and the control group has been presented in the Figure 6.16, and 6.17 respectively. The mean attitude scores of the experimental group and the control group for the total samples and the sub samples have been presented in the Figure 6.18.

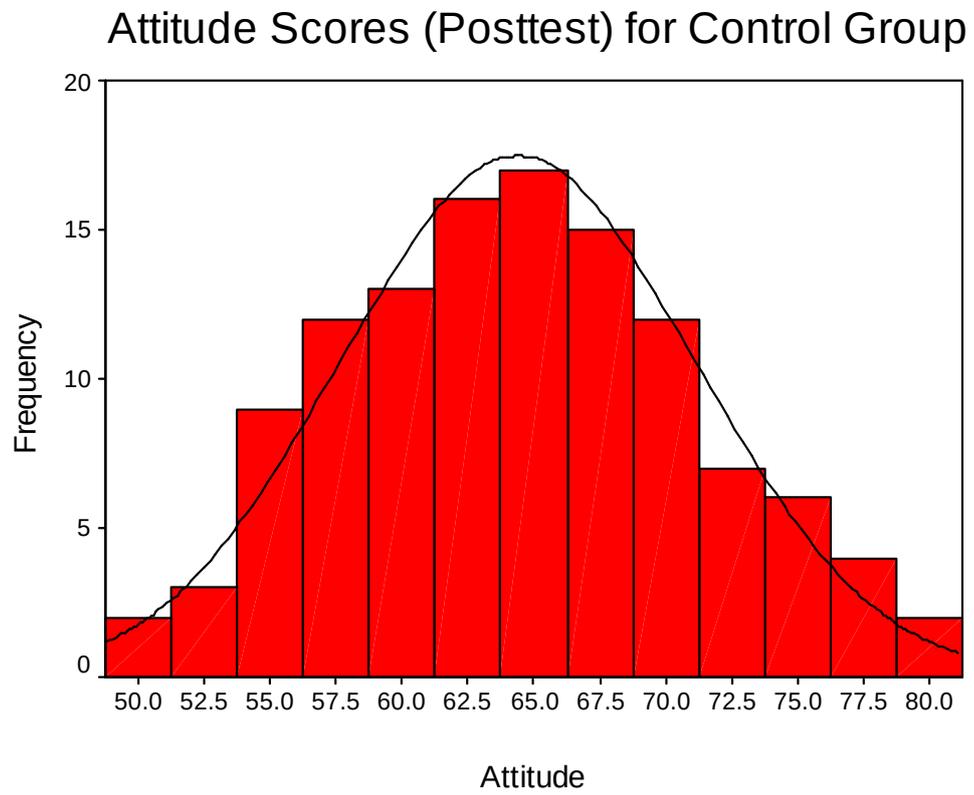
### **6.3.3. Comparison of Mean Scores of Attitude toward Accountancy**

The mean scores of attitude towards accountancy for the total sample and various subsamples in the pretest and posttest have been calculated and compared for significance of differences. The details of the analysis are presented in the following sections.

**Fig. 6.16**

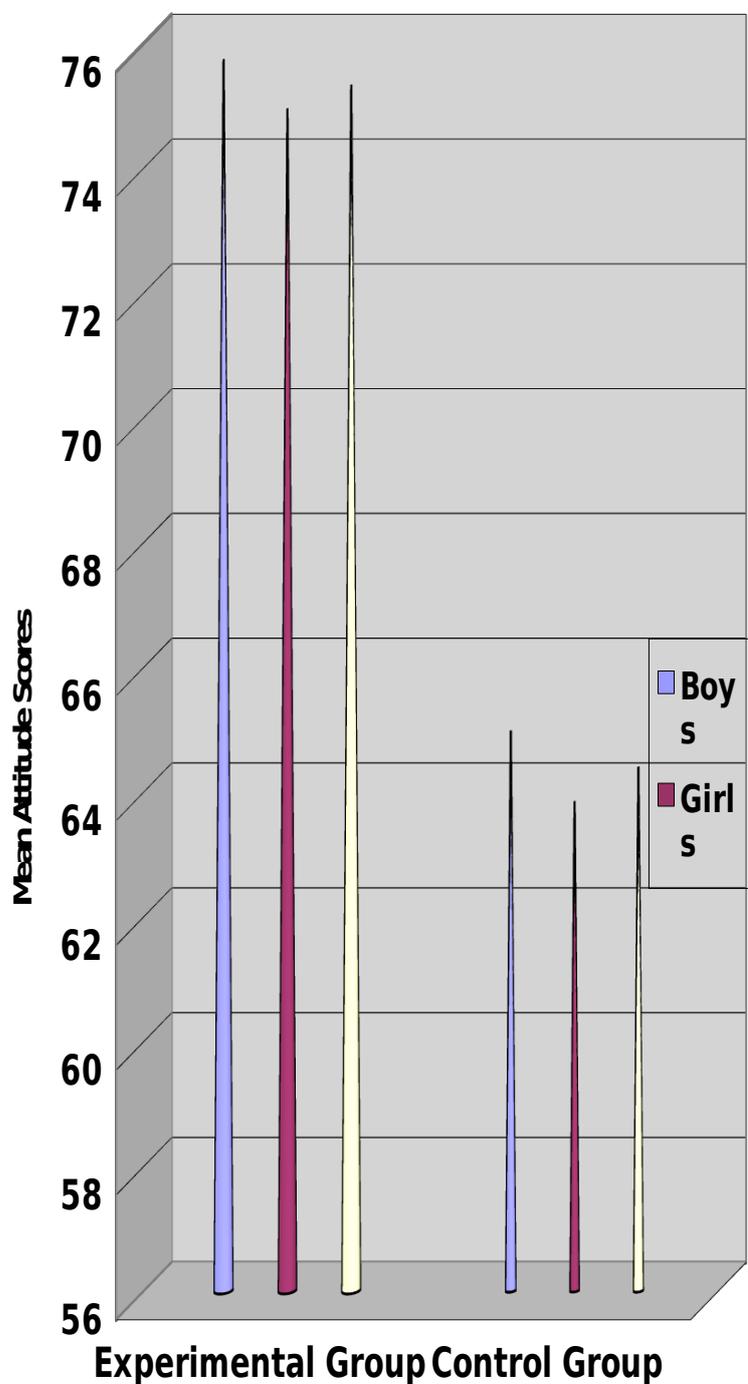


**Fig. 6.17**



**Fig. 6.18**

**Mean Attitude Scores (Posttest) of Experimental and Control Group**



**6.3.3.1. Comparison of Pretest and Posttest Scores of Attitude toward Accountancy**

In order to ascertain the influence of the Competency Based Instruction on the attitude of students' toward accountancy, the mean pretest and posttest scores of attitude has been compared for significance of difference. The result of the test of significance of difference between the mean pretest and posttest scores of attitude toward accountancy of students in both the experimental and control group are given in the Table 6.33.

The Table 6.33 show the result of the test of significance of the difference between the mean pretest and posttest scores of attitude toward accountancy separately for the experimental and control groups.

**Table 6.33**

**Data and Result of the Test of Significance of the Difference between the Mean Pretest and Posttest Scores of Attitude towards Accountancy of Students in the Experimental and Control Group**

<b>Group</b>	<b>Test</b>	<b>N</b>	<b>Mean</b>	<b>S D</b>	<b>C R</b>
Experimental	Pretest	122	46.62	3.79	<b>25.494*</b> *
	Posttest		75.33	5.72	
Control	Pretest	118	46.93	3.60	<b>14.856*</b> *
	Posttest		64.40	6.72	

\*\* Significant at 0.01 level

When the mean pretest and posttest scores of attitude toward accountancy for the experimental group are compared for the significance of difference, the F value obtained is 25.494, which is significant at 0.01 level ( $F = 25.494, p < 0.01$ ) as the table value of F for  $df$  1/121 are 3.89 and 6.76 at 0.05 and 0.01 levels respectively. The significant F value suggests that the

means attitude scores of pretest and post test of the experimental group (CBI) differ significantly. As the mean score of attitude toward accountancy of the posttest is high compared to the mean score of attitude toward accountancy of the pretest, it implies that after the experimental treatment there has a remarkable increase in the scores of attitude towards accountancy of the students of the experimental group. It is an indication that the Competency Based Instruction has positively influence the attitude of students towards accountancy.

The F value obtained when the mean pretest and posttest scores of attitude toward accountancy for the control group are compared for the significance of difference is 14.856, which is significant at 0.05 level ( $F = 14.856, p < 0.01$ ) as the table value of F for  $df$  1/121 are 3.89 and 6.76 at 0.05 and 0.01 levels respectively. The significant F value suggests that the means of pretest and post test scores of attitude toward accountancy of the students of the control group (CMT) differ significantly. It indicates that the Conventional Method of Teaching (CMT) also caused for the positive change in the attitude of students toward accountancy.

#### **6.3.3.2. Comparison of Mean Scores of Attitude toward Accountancy of the Control and Experimental Groups**

The analysis of the mean pretest and posttest scores of the experimental group and control group reveals that both the Competency Based Instruction (CBI) and Conventional Method of Teaching (CMT) were resulted in the increase in the students' scores on the attitude towards accountancy. Hence both the group were further compared on the basis of the

pretest and post test scores on the attitude towards accountancy. The data and results of the test of significance of the difference between the mean scores of attitude of students towards accountancy in the experimental and control group re presented in the Table 6.34.

**Table 6.34**

**Data and Result of the Test of Significance of the Difference between the Mean Scores of Attitude of Students towards Accountancy in the Experimental and Control Group (Pretest & Posttest)**

Test	Group	N	Mean	S D	C R
Pretest	Experimental	122	46.62	3.79	<b>0.647</b>
	Control	118	46.93	3.60	
Posttest	Experimental	122	75.33	5.72	<b>13.58**</b>
	Control	118	64.40	6.72	

**\*\* Significant at 0.01 level**

From the Table 6.34 it can observe that the critical ratio for the pretest scores of attitude towards accountancy of the experimental and control group is 0.647. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 0.647$ ,  $p > 0.05$ ). Hence the difference is statistically not significant. It means that there is no significant difference between the pretest scores of attitude towards accountancy of the experimental group (CBI) and the control group (CMT) before the treatment.

Statistically both the groups have more or less equal scores in the pretest measuring the attitude toward accountancy.

The comparison of the mean posttest scores of attitude towards accountancy for the experimental (CBI) and control (CMT) groups give a critical ratio of 13.58. As the values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238, we can conclude that there exist significant difference between the posttest scores of attitude towards accountancy of students in the experimental (CBI) and control (CMT) groups ( $t = 13.58, p < 0.01$ ).

As the mean post test score of attitude towards accountancy of the experimental group (CBI) is higher than that of the control group (CMT), we can attribute this difference to the treatment, i.e. to the Competency Based Instruction.

#### **6.4. INSTRUCTIONAL STRATEGIES AND SELF ESTEEM**

The analysis of the scores of mastery of competencies in accountancy through the two instructional approaches revealed the effectiveness of Competency Based Instruction (CBI) over the Conventional Method of Teaching (CMT). This section analyses the influence of the two instructional strategies on the self esteem of the students.

##### **6.4.1. Distribution of Pretest Scores of Self Esteem**

Statistical measures like range, mean, median, standard deviation and skewness were computed for the pretest scores of self esteem of the control

group (CMT) and experimental group (CBI) to determine the dependability of the sample statistics and to compare the influence of the different instructional strategies. The details of the analysis have been presented in the Table No. 6.35. The pretest scores are also presented graphically.

The Table 6.35 reveals that the mean pretest scores of self esteem for the experimental group is 55.70 with a standard deviation of 3.036, while it is 56.45 (standard deviation 2.93) for the control group.

The mean self esteem scores in the pretest for boys and girls of the experimental group are 56.07 and 55.36 respectively with standard deviation 2.87 and 3.16. The mean self esteem scores in the pretest for boys and girls of the control group are 56.60 and 56.31 respectively with the standard deviation of 3.07 and 2.81.

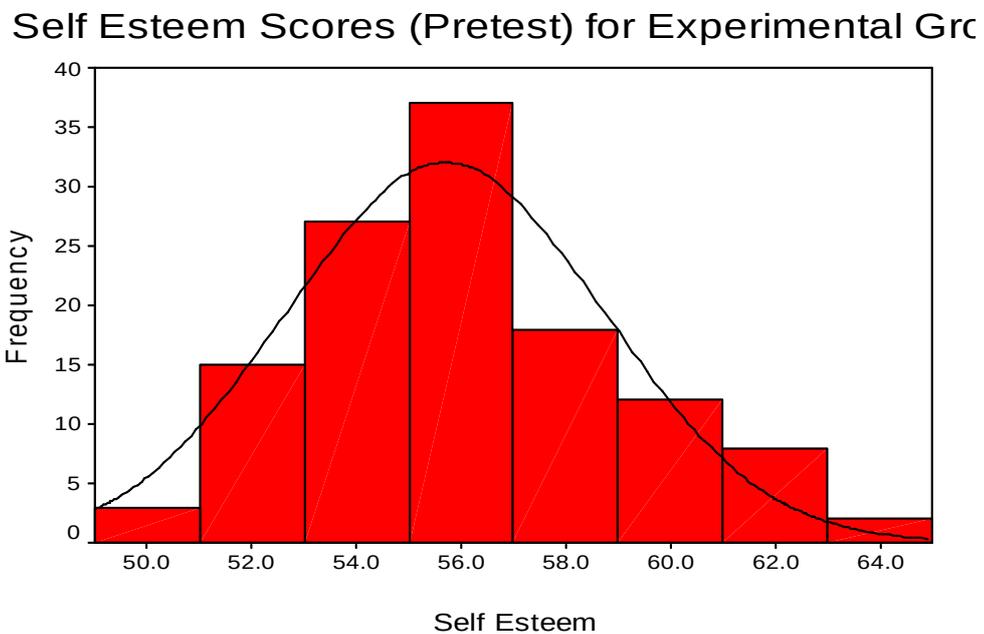
**Table 6.35**

**Measures of Central Tendency and Dispersion of Self Esteem Scores  
(Pretest) of Experimental and Control Group**

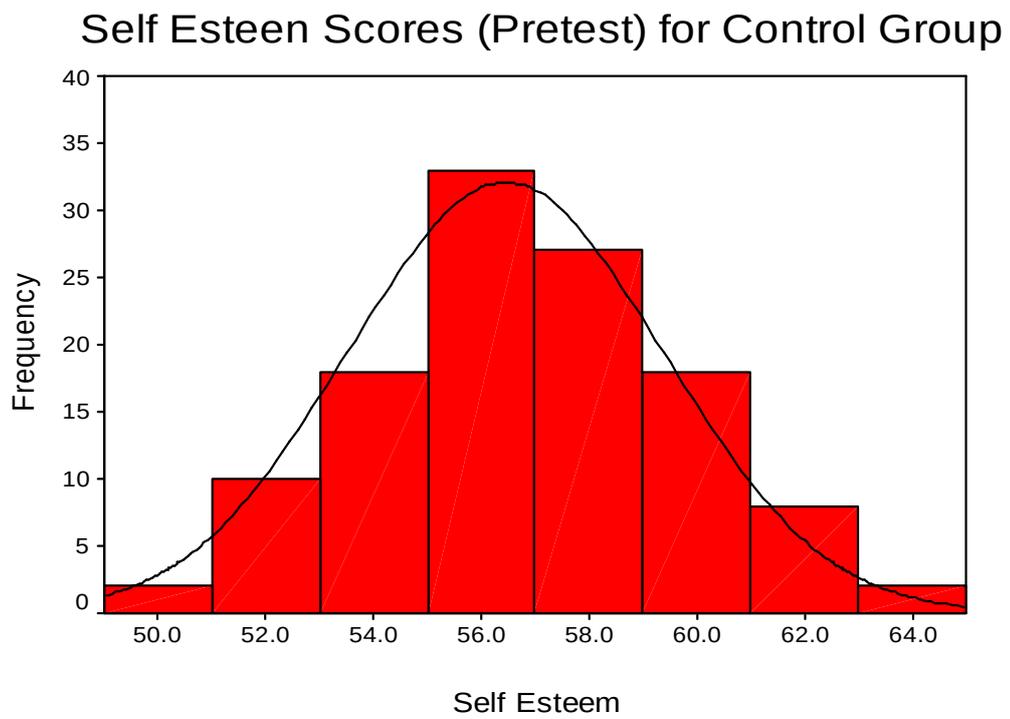
<b>Group</b>		<b>N</b>	<b>Rang e</b>	<b>Mean</b>	<b>Media n</b>	<b>SD</b>	<b>Skewnes s</b>
<b>Experimenta l</b>	Boys	58	13	56.07	56	2.87	0.329
	Girls	64	13	55.36	55	3.16	0.494
	<b>Tota l</b>	<b>122</b>	<b>13</b>	<b>55.70</b>	<b>56</b>	<b>3.03</b>	<b>0.381</b>
<b>Control</b>	Boys	57	13	56.60	56	3.07	-0.087
	Girls	61	13	56.31	56	2.81	0.088
	<b>Tota l</b>	<b>118</b>	<b>13</b>	<b>56.45</b>	<b>56</b>	<b>2.93</b>	<b>0.005</b>

The frequency curves and graphs drawn for the distribution of scores of the pretest scores of self esteem for the experimental group and control group were presented in Figures 6.19, and 6.20 respectively. The mean pretest scores of self esteem of the experimental group and the control group for the total samples and the sub samples have been presented in the Figure 6.21.

**Fig. 6.19**

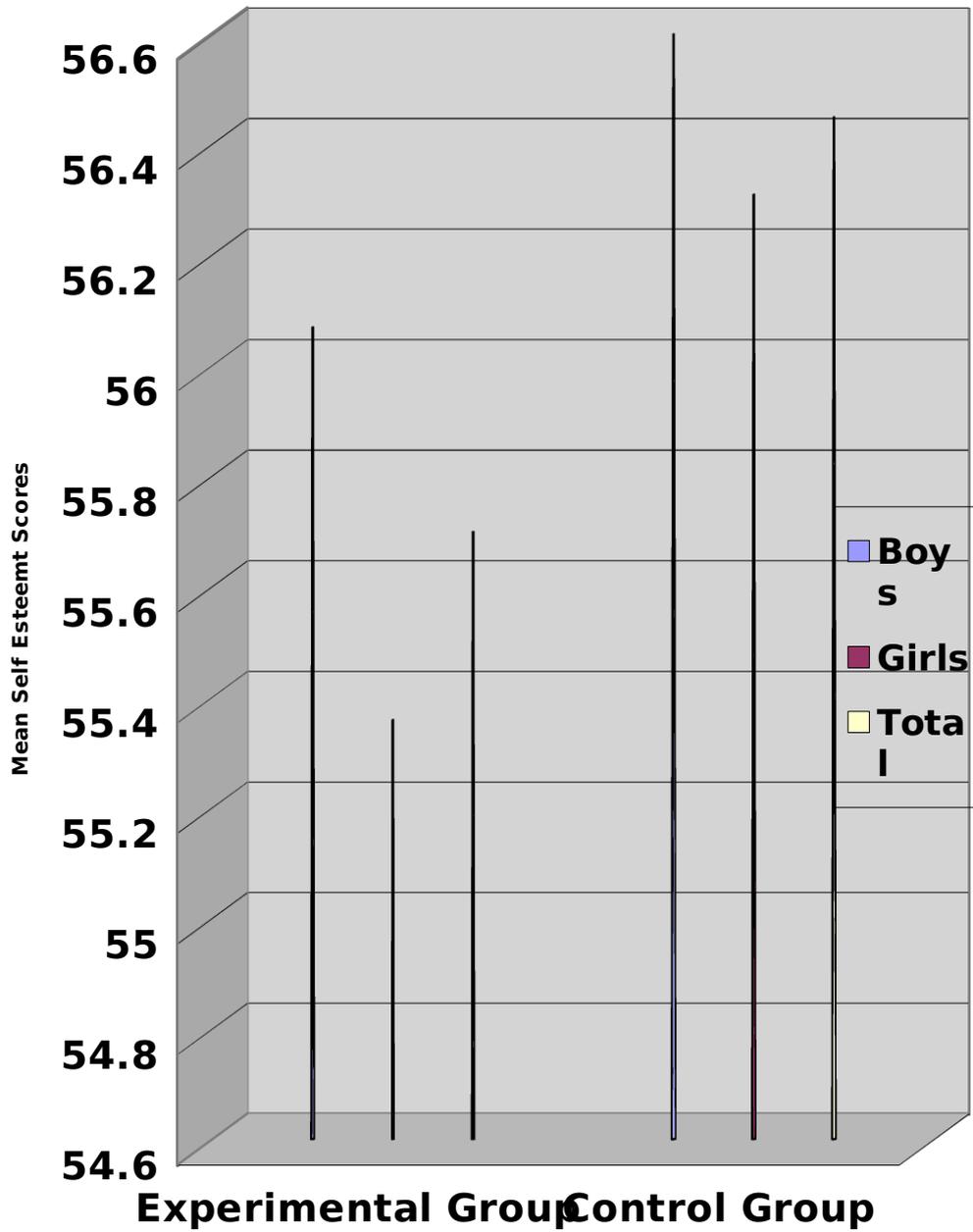


**Fig. 6.20**



**Fig. 6.21**

**Mean Self Esteem Scores (Pretest)  
of Experimental and Control Group**



**6.4.2. Distribution of Posttest Scores of Self Esteem**

The posttest score of the self esteem of the students in the experimental and control groups for the total sample and the various subsamples has been presented in the Table 6.36.

**Table 6.36**

**Measures of Central Tendency and Dispersion of Self Esteem Scores  
(Posttest) of Experimental and Control Groups**

<b>Group</b>		<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>Median</b>	<b>SD</b>	<b>Skewness</b>
Experimental	Boys	58	28	72.69	73	6.55	0.248
	Girls	64	28	74.17	73	7.36	0.091
	<b>Total</b>	<b>122</b>	<b>28</b>	<b>73.47</b>	<b>73</b>	<b>7</b>	<b>0.185</b>
Control	Boys	57	33	63.49	64	7.55	-0.007
	Girls	61	29	65.51	66	6.4	-0.312
	<b>Total</b>	<b>118</b>	<b>33</b>	<b>64.53</b>	<b>64</b>	<b>7.02</b>	<b>-0.194</b>

The Table 6.36 reveals that the mean posttest scores of self esteem for the students in the experimental group is 73.47 with a standard deviation of

7.36, while it is 64.53 (standard deviation 7.02) for the students in the control group.

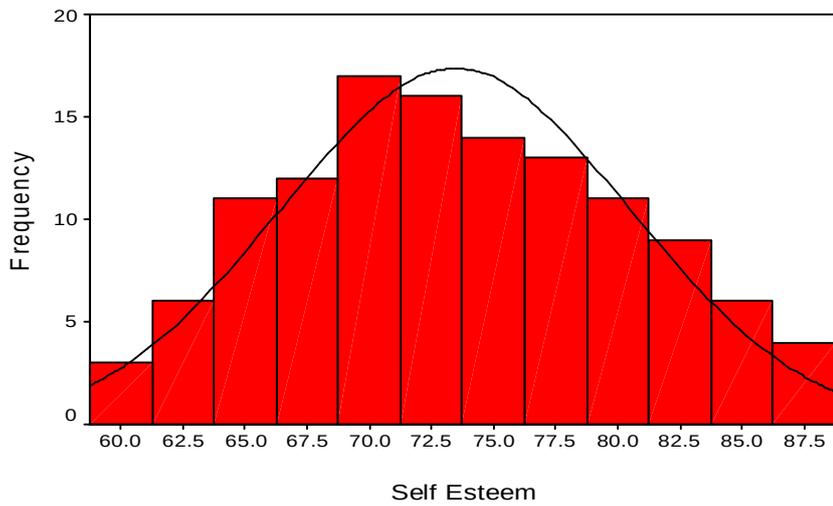
The mean self esteem scores in the posttest for the boys and girls of the experimental group are 72.69 and 74.17 respectively with standard deviation 6.55 and 7.36. So the boys and girls of the experimental group have obtained more or less equal scores in the posttest of attitude towards accountancy.

The mean self esteem scores of the boys and girls of the control group are 63.49 and 65.51 respectively with the standard deviation of 7.55 and 6.4. It indicates that the boys and girls of the control group have obtained more or less equal scores in the posttest of attitude towards accountancy.

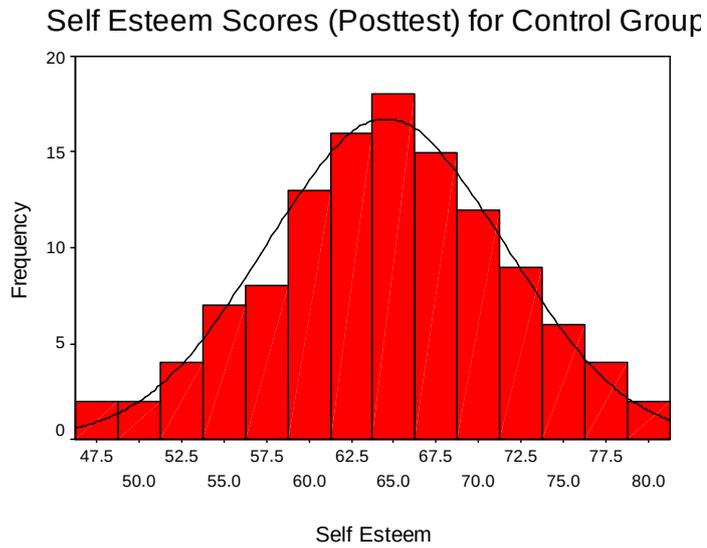
The frequency curves and graphs drawn for the distribution of posttest scores of self esteem for the students in the experimental group and the control group has been presented in Figures 6.22, and 6.23 respectively. The mean self esteem scores of the experimental group and the control group for the total samples and the various subsamples have been presented in the figure 6.24.

**Fig. 6.22**

Self Esteem Scores (Posttest) for Experimental Group

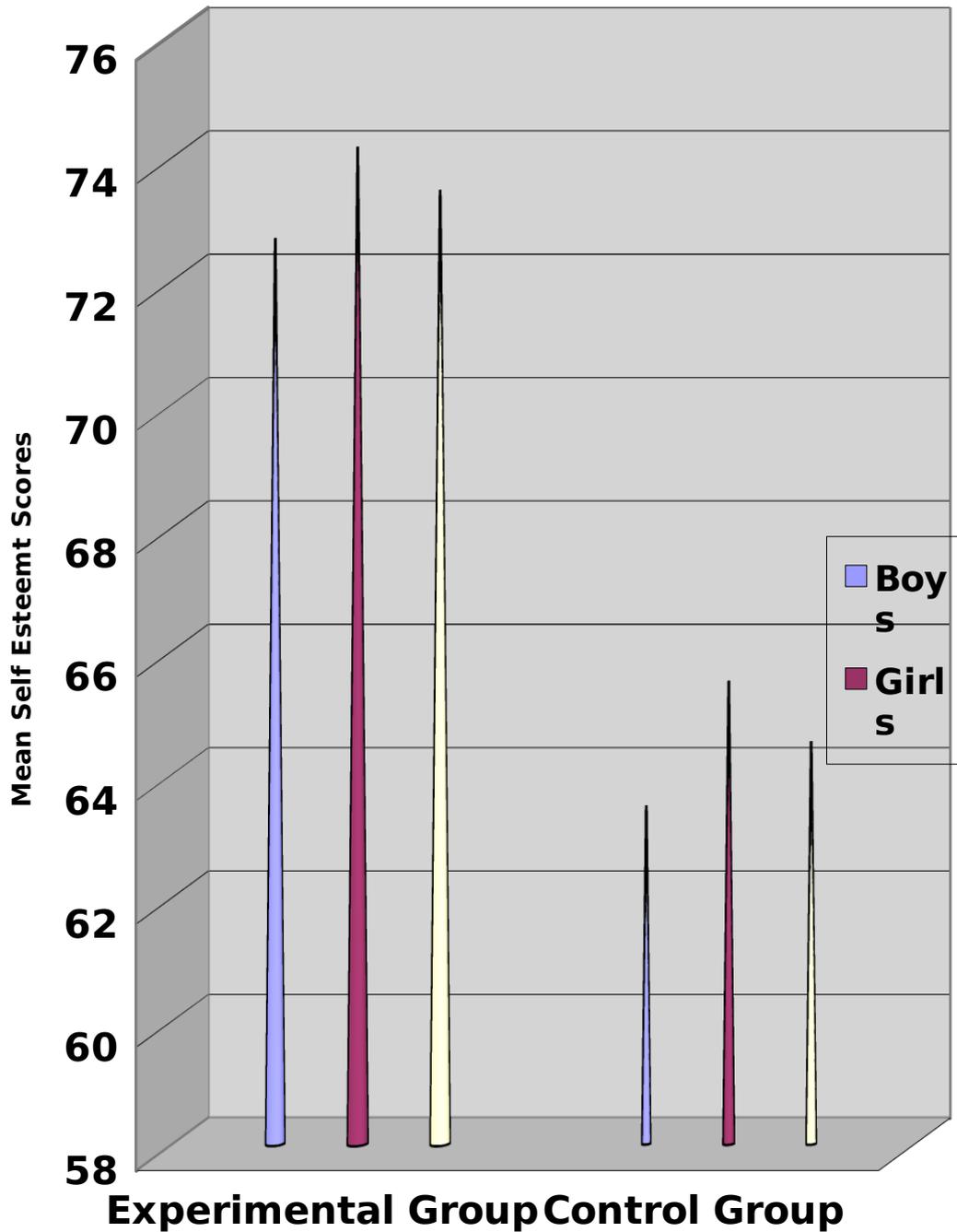


**Fig. 6.23**



**Fig. 6.24**

**Mean Self Esteem Scores (Posttest)  
of Experimental and Control Group**



**6.4.3. Comparison of Mean Scores of Self Esteem**

To find out the influence of the instructional strategies on the self esteem of the students of the experimental group and the control group, the self esteem scores obtained in the pretest and posttest by the students of the total sample and the various subsamples have been compared and tested for the significance of differences.

In order to find out the influence of Competency Based Instruction (CBI) on the self esteem of students the self esteem scores was assessed by administering a self esteem inventory in the control group (CMT) and experimental group (CBI) before and after the treatment and different statistical methods were applied to compare the self esteem scores obtained.

#### **6.4.3.1. Comparison of Pretest and Posttest Scores of Self Esteem**

In order to ascertain the influence of the Competency Based Instruction (CBI) on the self esteem of the students, the mean pretest and posttest scores of self esteem has been compared for significance of difference. The results of the test of significance of difference between the mean pretest and posttest scores of self esteem of students in the experimental group and the control group are given in the Table 6.37.

**Table 6.37**

**Data and Result of the Test of Significance of the Difference between the Mean Pretest and Posttest Scores of Self Esteem of Students in the Experimental and Control Group**

Group	Test	N	Mean	S D	C R
Experimental	Pretest	122	55.70	3.03	<b>15.009*</b>
	Posttest		73.47	7.00	
Control	Pretest	118	56.45	2.93	<b>6.687*</b>
	Posttest		64.53	7.02	

**\*\* Significant at 0.01 level**

**\* Significant at 0.05 level**

The Table 6.37 show the result of the test of significance of the difference between the mean pretest and posttest scores of self esteem separately for the experimental and control groups.

When the mean pretest and posttest scores of self esteem for the experimental group are compared for the significance of difference, the F value obtained is 15.009, which is significant at 0.01 level ( $F = 15.009, p < 0.01$ ) as the table value of F for  $df$  1/121 are 3.89 and 6.76 at 0.05 and 0.01 levels respectively. The significant F value suggests that the means of pretest and post test scores of self esteem of the experimental group (CBI) differ significantly. As the mean self esteem score of posttest is high compared to the mean self esteem score of pretest, it implies that after the treatment there has a remarkable increase in the self esteem of the students of the experimental group. It is an indication that the Competency Based Instruction has positively contributed to the self esteem of the students.

The F value obtained when the mean pretest and posttest scores of self esteem for the control group are compared for the significance of difference is 6.687, which is significant at 0.05 level ( $F = 6.687, p < 0.05$ ) as the table value of F for  $df$  1/121 are 3.89 and 6.76 at 0.05 and 0.01 levels respectively. The significant F value suggests that the means of pretest and post test scores of self esteem of the control group (CMT) differ significantly. As the mean self esteem score of posttest is high compared to the mean self esteem score of pretest, it implies that after the treatment there has an increase in the self esteem of the students of the control group. Also, it indicate that the Conventional Method of Teaching (CMT) also cause for the positive change in the self esteem of the students.

#### **6.4.3.2. Comparison of Self Esteem Scores of the Experimental and Control Group**

The comparison of pretest and posttest scores of self esteem for the experimental (CBI) and control (CMT) groups shows significant difference in both the group. It may be due to general increase in the self esteem of students due to maturity. So in order to ascertain which of the two instructional strategies is more contributing to the self esteem of the students, the self esteem scores of pretest and posttest have been compared for the significance of difference separately. The data and result of the test of significance of difference between mean self esteem scores are presented in Table 6.38.

**Table 6.38**

**Data and Result of the Test of Significance of the Difference between the Mean Scores of Self Esteem of Students in the Experimental and Control Group (Pretest & Posttest)**

Test	Group	N	Mean	S D	C R
Pretest	Experimental	122	55.70	3.03	<b>1.784</b>
	Control	118	56.45	2.93	
Posttest	Experimental	122	73.47	7.00	<b>9.871**</b>
	Control	118	64.53	7.02	

**\*\* Significant at 0.01 level**

From the table 6.38 it can be observed that the critical ratio for the pretest scores of self esteem of the experimental and control group is 1.784. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  239 ( $t = 1.784$ ,  $p > 0.05$ ). Hence the difference is statistically not significant. It means that there is no significant difference between the pretest scores of self esteem of experimental (CBI) and control (CMT) groups before the treatment. Statistically both the group have more or less similar scores in the pretest.

The comparison of the mean posttest scores of self esteem for the experimental (CBI) and control (CMT) groups gives a critical ratio of 9.817. As the values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  239, we can conclude that there exist significant difference between the posttest scores of self esteem of students in the experimental (CBI) and control (CMT) groups ( $t = 9.817$ ,  $p < 0.01$ ).

As the mean post test score of the experimental group (CBI) is higher than that of the control group (CMT), we can attribute this difference to the treatment, i.e. to the Competency Based Instruction. So it can be rightly conclude that the Competency Based Instruction is contributing more to the self esteem of the students compared to the Conventional Method of Teaching.

### **6.5. TENABILITY OF HYPOTHESES**

The major objective of the study was to compare the effectiveness of the Competency Based Instruction in the attainment of mastery level learning in accountancy among the higher secondary school students. The Competency Based Instruction was imparted with the through modules developed by the investigator for the purpose of the present study. The Competency Based Instruction has been compared with Conventional Method of teaching. The specific hypotheses formulated for the study are tested for tenability in relation to the findings.

#### **Hypothesis I:**

*There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of competencies in accountancy.*

The result of the analysis shows that there is no significant difference between the pretest scores of students for of mastery of competencies in accountancy of the control group and the experimental group of higher

secondary school students before the treatment. The mean pretest scores experimental and control groups are 18.98 and 19.07. ( $t = 0.241, p > 0.05$ ).

The mean posttest score of the experimental group is 87.17, while it is only 72.81 in the case of the control group. Hence there is a difference of 10.36 between the mean posttest scores of the experimental and control groups. The critical ratio is 15.967. ( $t = 15.967, p < 0.01$ ). This means that there exists significant difference between the mean scores of posttest of the experimental and control groups.

The mean gain score of the experimental group is 64.19 while it is 53.74 in the case of the control group. The critical ration found to be 17.228. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels for  $df$  238. It indicates that the mean gain scores of the experimental group and control group differ significantly. It establishes that the experimental group gain more from the instruction compared to the control group.

Before the treatment there is no significance difference between the control group and the experimental group. But after the treatment, students in the experimental group have shown substantially high scores in the mastery of competencies in accountancy compared to the students in the experimental group. The analysis shows that there is significant difference between the experimental group and control group in the posttest scores. This is also supported by the significant difference between the experimental group and control group in the mean gain scores also. Hence the hypothesis that there is no significant difference between the effectiveness of Competency Based

Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of competencies in accountancy has been rejected. Competency Based Instruction (CBI) is more effective in the attainment of mastery of competencies in accountancy compared to the Conventional Method of teaching (CMT).

### **Hypothesis II**

*There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of cognitive competencies in accountancy*

The mean pretest scores of the control group and the experimental group for the mastery of cognitive competencies in accountancy are 6.14 and 6.14 respectively. The critical value for the mean pretest score in the mastery of cognitive competencies for the experimental and control group is 0.212. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 0.212$ ,  $p > 0.05$ ). So before the treatment the control group and the experimental group is almost equal in respect of the mastery of cognitive competencies.

The mean posttest scores of the control group and the experimental group for the mastery of cognitive competencies in accountancy are 22.26 and 25.38 respectively. The critical value obtained when the mean posttest scores in the mastery of cognitive competencies for the experimental and control group were compared is 15.648 ( $t = 15.648$ ,  $p < 0.01$ ). It is concluded

that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of cognitive competencies.

Hence the hypothesis that is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of cognitive competencies in accountancy has been rejected at 0.01 level of significance.

### **Hypothesis III**

*There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of performance competencies in accountancy.*

The mean pretest scores in the mastery of performance competencies for the experimental and control group are 12.86 and 12.96 respectively. The critical value obtained when the mean pretest score in the mastery of performance competencies for the experimental and control group were compared is 0.244. The values for significance are 2.594 and 1.97 at 0.01 and 0.05 levels respectively for  $df$  238 ( $t = 0.244, p > 0.05$ ). So the experimental and control group does not differ significantly in respect of the mastery of performance competencies in accountancy before the treatment.

The mean posttest scores in the mastery of performance competencies for the experimental and control group are 57.80 and 50.54 respectively. The critical value obtained when the mean posttest scores in the mastery of performance competencies in accountancy for the experimental and control

group was compare is 15.963 ( $t = 15.963, p < 0.01$ ). It is concluded that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of performance competencies.

Hence the null hypothesis that there is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of performance competencies in accountancy has been rejected with 99 % confidence. It is concluded that the Competency Based Instruction is more effective in the attainment of mastery of performance competencies in accountancy compared to the Conventional Method of teaching (CMT).

#### **Hypothesis IV**

*There is no significant difference between the percentage of masters of competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).*

The percentage of students who mastered the competencies in accountancy in the experimental group is 88.52 while it is only 16.95 in the control group. The critical value obtained when the percentages of masters in the experimental group and control group in respect of the total competencies were compared and tested for significance is 10.882 ( $t = 10.882, p < 0.01$ ). This means that the difference between the percentages of masters in the experimental group (CBI) and control group (CMT) are statistically significant. Hence the null hypothesis that there is no significant difference

between the percentage of masters of competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) has been rejected.

### **Hypothesis V**

*There is no significant difference between the percentage of masters of cognitive competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).*

In the experimental group (CBI), 89.34 % of students have attained mastery level learning in cognitive competencies in accountancy. This is only 16.10 % in the case of students in the control group (CMT). The critical value obtained when the percentages of masters in the experimental group and control group in respect of the cognitive competencies were compared and tested for significance is 10.901 ( $t = 10.901$ ,  $p < 0.01$ ). This means that the difference between the percentages of masters in the experimental group (CBI) and control group (CMT) in respect of the cognitive competencies in accountancy is statistically significant. Hence the null hypothesis that there is no significant difference between the percentage of masters of cognitive competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) has been rejected.

### **Hypothesis VI**

*There is no significant difference between the percentage of masters of performance competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).*

In the experimental group (CBI), 88.52% of students have attained mastery level learning in the performance competencies in accountancy. This is only 16.95 % in the case of students in the control group (CMT). The critical value obtained when the percentages of masters in the experimental group and control group in respect of the performance competencies were compared and tested for significance is 10.882 ( $t = 10.882, p < 0.01$ ). This means that the difference between the percentages of masters in the experimental group (CBI) and control group (CMT) in respect of the performance competencies in accountancy was statistically significant.

Hence the null hypothesis that there is no significant difference between the percentage of masters of performance competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) has been rejected.

### **Hypothesis VII**

*There is no significant gender difference in respect of mastery of competencies in accountancy.*

The mean pretest scores of the mastery of competencies in accountancy of the boys and girls in the control group are 19.58 and 18.59 respectively ( $t = 0.281, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the control group, i.e., the Conventional Method of Teaching (CMT) group. The mean pretest scores of the boys and girls in the experimental group are 19.02 and 18.95 respectively ( $t = 0.127, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the Competency Based Instruction (CBI) group.

In the same way the mean posttest score of the boys and girls in the control group is 72.56 and 73.03 respectively ( $t = 0.552, p > 0.05$ ). As this value is less than the limit set for significance, there exists no significant difference between the mean posttest scores of boys and girls in the control group. The mean posttest score of the boys in the experimental group is 83.16, while it is 83.19 in the case of girls. When the means posttest scores of boys and girls of the experimental group were compared is 0.033. The values for significance are 2.625 and 1.98 at 0.01 and 0.05 levels respectively for  $df$  120 ( $t = 0.0331, p > 0.05$ ). As this value is less than the limit set for significance, there exists no significant difference between the mean posttest scores of boys and girls in the experimental group.

The analysis shows that this is true in respect of the mastery of both the cognitive and performance competencies in accountancy. Hence the

hypothesis that there is no significant gender difference in respect of mastery of competencies in accountancy has been substantiated.

### **Hypothesis VIII**

*The Competency Based Instruction (CBI) has no significant impact on the attitude of students towards accountancy*

When the pretest and posttest scores of the experimental and control groups in respect of the students' attitude towards accountancy were compared both the group showed a significant enhancement in their attitude towards accountancy. Further analysis of the attitude scores showed that before the treatment, the mean scores of attitude towards accountancy for the experimental group and control group did not differ significantly. But when the posttest scores of attitude towards accountancy for the experimental group and control group were compared it give a significant critical ratio. ( $t=13.58$ ,  $p < 0.01$ ) So it is concluded that the increased attitude scores of the experimental group is due to the effect of the Competency Based Instruction. Hence the null hypothesis that the Competency Based Instruction (CBI) has no significant impact on the attitude of students towards accountancy has been rejected.

### **Hypothesis IX**

*The Competency Based Instruction (CBI) has no significant impact on the self esteem of students.*

When the pretest and posttest scores of self esteem of students in the experimental and control groups were compared both the group showed a significant enhancement in their self esteem. Further analysis of the self esteem scores showed that before the treatment, the mean scores of self esteem for the experimental group and the control group did not differ significantly. But when the posttest scores of self esteem for the experimental group and control group were compared it give a significant critical ratio ( $t = 9.871, p < 0.01$ ). So it is concluded that the increased self esteem scores of the experimental group is due to the effect of the competency based instruction. Hence the null hypothesis that the Competency Based Instruction has no significant impact on the self esteem of the students has been rejected at 0.01 level of significance.

From the analysis of the post test scores of the experimental and control groups we could infer that the Competency Based Instruction is more effective in the attainment of mastery of competencies in accountancy among the students compared to the Conventional Method of Teaching. From the analysis it was also concluded that the Competency Based Instruction has a positive impact on the attitude of students towards accountancy and self esteem.

## **6.7. DISCUSSION OF THE RESULTS**

In recent years researchers were concentrating on innovative instructional strategies based on competence development and quality improvement. Those strategies were found more effective than conventional method of teaching. But teachers especially in India found to be reluctant to

switch over to the innovative methods by doing away with age-old method of explaining what is presented in the prescribed text books. The main reason for this attitude is that they are unaware of the comparative effectiveness of those methods and lack of concrete instructional materials.

When the investigator reviewed the all the available instructional strategies, he noticed that the researchers did find the new strategies more effective than conventional method of teaching. But no comparative studies have been conducted on Competency Based Instruction in the subject accountancy.

The results of the present study are related to the comparative effectiveness of the competency based instruction in the attainment of mastery of competencies in accountancy. The study also analysed the impact of the Competency Based Instruction on the self esteem and attitude of students towards accountancy.

The studies by Smith, Clifton L. (1990), Preston, Janet E & Kunz, Margie H (1990), Gibbons, Michael (1991), Ruhland, Sheila K. (1993), Ben-Yoseph, Miriam; Ryan, Patrick; Benjamin, Ellen, (1999), Jiang, Mingming; Shrader, Vincent, (2001), McEvoy, Glenn M. *at el* (2005), Chang, Chi-Cheng, (2006), Chyung, Seung Youn; Stepich, Donald & Cox, David, (2006)and Baartman, Liesbeth K. J.; Bastiaens, Theo J, *at el*, (2007) deals with different aspects of the competency based instruction. Some of the studies identified the competencies to be mastered by the students, while others deal with the effectiveness of the strategy.

The scope of the present study was extended to the identification of competencies to be mastered by the students in accountancy at higher secondary level, development of Competency Based Instructional modules for the attainment of those competencies and the empirical validation of the strategy. The results of the study show that the competency based instruction is more effective in mastering the competencies in accountancy at higher secondary level. This findings, though applicable to accountancy at higher secondary level confirms those of the studies conducted earlier on the effectiveness of Competency Based Instruction.

The findings of the study reveal that the Competency Based Instruction is more effective in the mastery of both the cognitive and performance competencies in accountancy.

Another important result of the present study is related to the comparison of the extent of masters through Competency Based Instruction. The extent of masters who studied accountancy through the Competency Based Instruction was very high compared to those who studied through Conventional Method of Teaching. The result is significant in the context of increased quality and competence consciousness in education.

# **SUMMARY, FINDINGS AND SUGGESTIONS**

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- 7.1. Restatement of the Problem
  - 7.2. Objectives of the Study
  - 7.3. Hypotheses
  - 7.4. Methodology
  - 7.5. Tools Used
  - 7.6. Statistical Techniques Used
  - 7.7. Major Findings of the Study
  - 7.8. Suggestions for Implementation
  - 7.9. Suggestions for Further Research
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# **SUMMARY, FINDINGS AND SUGGESTIONS**

A summary of the study is presented in this concluding chapter. A brief description of the procedures adopted for the study is also given. The analysis under different heads and major findings is concisely described. This chapter conclude with a discussion of the implications that can be derived from the present study and suggestions for further research in the filed of education.

## **7.1. RESTATEMENT OF THE PROBLEM**

The problem for the present study has been stated as

“EFFECTIVENESS OF COMPETENCY BASED INSTRUCTION IN THE ATTAINMENT OF MASTERY LEVEL LEARNING IN ACCOUNTANCY AMONG HIGHER SECONDARY SCHOOL STUDENTS”

## **7.2. OBJECTIVES OF THE STUDY**

The present study is aimed at finding the effectiveness of the Competency Based Instruction over the Conventional Method of Teaching. The following specific objectives are formulated for the study.

1. To identify the major competencies to be mastered by students in accountancy at higher secondary level
2. To identify the sub competencies to be acquired by the students for the mastery of each of the competencies in Accountancy

3. To develop competency based instructional modules for mastery of selected competencies in accountancy.
4. To study the effectiveness of the competency based instruction (CBI) and conventional method of teaching (CMT) in the mastery of competencies in accountancy
5. To study the effect of the competency based approach to teaching accountancy on the self esteem of the students
6. To study whether the competency based approach to teaching accountancy influence the attitude of the students towards accountancy.

## **7. HYPOTHESES**

Based on the objectives of the study the following specific hypotheses are formulated.

1. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of competencies in accountancy
2. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of teaching (CMT) in the attainment of mastery of cognitive competencies in accountancy
3. There is no significant difference between the effectiveness of Competency Based Instruction (CBI) and Conventional Method of

teaching (CMT) in the attainment of mastery of performance competencies in accountancy

4. There is no significant difference between the percentage of masters of competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
5. There is no significant difference between the percentage of masters of cognitive competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
6. There is no significant difference between the percentage of masters of performance competencies in accountancy among the students who learned accountancy under Competency Based Instruction (CBI) and Conventional Method of teaching (CMT).
7. There is no significant gender difference in respect of mastery of competencies in accountancy.
8. The Competency Based Instruction (CBI) has no significant impact on the attitude of students towards accountancy
9. The Competency Based Instruction (CBI) has no significant impact on the self esteem of students.

#### **7.4. METHODOLOGY**

The methodology adopted for the present study has been briefly described below.

### **7.4.1. Identification of Competencies**

The purpose of the study is to verify the effectiveness of Competency Based Instruction in the attainment of mastery level learning in accountancy among higher secondary school students. As the details of competencies to be mastered by the higher secondary students in accountancy are not readily available the investigator identified the competencies. The identification of the competencies involves the following strategies.

#### **7.4.1.1. Document Analysis**

For the purpose of identifying the competencies in Accountancy, the investigator analysed the curriculum prescribed for higher secondary course by the NCERT and SCERT (Kerala). The competencies and sub competencies of each of the areas in accountancy of higher secondary course has been identified. The investigator developed the draft list of competencies. Detailed discussion with experts and working teachers has been conducted by the investigator in advance before preparing the draft of competencies.

#### **7.4.1.2. Workshop of Teachers**

After preparing the draft of the list of competencies, the investigator conducted workshop of higher secondary school commerce teachers. Before discussing the draft list of competencies, the participants of the workshop has been given orientation on competency based instruction and the nature of

competency statements. 50 higher secondary school teachers and 5 teacher educators were participated in the workshop. The participants were divided into five groups and each group has been entrusted with specific areas of the curriculum content. In the initial stage the participants discusses the draft list of competencies in their group and noted their suggestions, remarks and alterations. Then they presented the same in the general group discussion for approval, so the possibility of over looking and error has been minimised.

#### **7.4.1.3. Consultation with Experts**

The identified competencies were submitted to a panel of experts for their validation. The panel consist of 5 experts from the field of instruction. It includes faculty members of university departments and training colleges. The draft competencies formulated through curriculum analysis and workshop has been submitted to the members of the panel. The modifications and suggestions made by the experts were incorporated and hence the list of competencies has been finalised.

#### **7.4.1.4. Analysis of Observations on Identified Competencies**

To verify the quality of competency statements it was decided to evaluate them in respect of the six essential attributes. An observation schedule has been developed for this proposes. The tool consists of twenty statements expressing the observations of higher secondary commerce teachers regarding the quality of identified competencies.

### **7.4.2. Development of Competency Based Instructional Modules**

Since the Competency Based Instructional Modules in Accountancy for the higher secondary level were not available, the investigator developed the same. For the preparation of modules three areas in accountancy has been selected, which constitute the basic accounting cycle from recoding of transactions to the preparation of financial statements. The areas are: (i) Origin and Recording of Transactions (ii) Trial Balance and (iii) Financial Statements. The competencies and sub competencies identified from these areas of accountancy has been used as the base for preparing the modules. Fourteen modules have been developed by the investigator.

### **7.4.3. Experimentation**

The main purpose of the study was to compare the effectiveness of competency based instruction over the conventional method of teaching. Experimental method, the most exacting and difficult of all methods and also the most important from the strictly scientific point of view was adopted to compare the effectiveness of competency based instruction. The subjects were assigned to control group and experimental group. After conducting pretest the treatment has been given to the experimental group. Then posttest administration is made and if any difference, is attributed to the experiment or treatment.

### **7.4.4. Study Design**

The present study is designed as developmental cum experimental study. The competencies in accountancy to be mastered by the students were identified and modules for imparting Competency Based Instruction were developed before starting the treatment. For the purpose of verifying the effectiveness of competency based instruction, 'Non-randomised Control Group, Pretest Posttest' design was used. The assignment of groups into control and experimental were done randomly. Hence there are be two groups i.e., an experimental group and a control group. The experimental group has been treated with Competency Based Instruction and the control group has been treated with Conventional Method of Teaching.

#### **7.4.5. Sample Design**

Care had been taken to ensure that the samples selected were equivalent in many respects. It was decided to select co-educational schools for experimentation. It was also ensured that almost equal number of boys and girls were included in the sample. For the present study multi stage sampling technique was adopted to select the required sample. In the first level one district was select using convenient sampling techniques. From this districts the list of higher secondary schools with similar academic environment were identified. From among these schools four schools were selected in the second stage. As in each school there was only one commerce batch the entire class was taken together. The assignment of classes into control and experimental groups was done randomly. The total sample consists of 240 students of higher secondary school commerce classes.

## **7.5. TOOLS USED**

The following tools have been used for the experiment and data collection in the present study.

- i. Prerequisite Test (Entry Behaviour Test) in Accountancy
- ii. Competency Based Instructional Modules (Developed by the Investigator)
- i. Learning activities for Conventional Method of Teaching (Adopted from Higher Secondary School teachers' Sourcebook published by SCERT, Kerala)
- iii. Criterion Referenced Achievement Test in Accountancy (Developed by the Investigator)
- iv. Self Esteem Inventory
- v. Accountancy Attitude Scale (Developed by the Investigator)

## **7.6. STATISTICAL TECHNIQUES USED**

The collected data has been analysed both descriptively and inferentially. The pretest and posttest scores in the mastery of competencies in accountancy for the experimental group and control group were consolidated along with self esteem scores and scores on attitude towards accountancy. For the purpose of analysis of data, statistical techniques like percentages, averages, test of significance of difference between means, test of significance of difference between percentages etc. were applied in the present study.

The test scores of the total samples and different subsamples were tested for significance using *Critical Ratio Method (C.R)*. Test of significance of percentages where also used.

## **7.7. MAJOR FINDINGS OF THE STUDY**

The findings of the study are presented below in two sections. The first section gives the areas in accountancy and the major competencies identified from each area. The second section presents the findings on the effectiveness of Competency Based Instruction based on the statistical analysis of data.

### **7.7.1. Competencies in Accountancy**

The present study identified 56 competencies and 226 subcompetencies from the eleven areas in accountancy at higher secondary level. The competencies involve both cognitive and performance competencies. The areas in accountancy and the major to be mastered by students in each area are described below.

#### **Area 1: Theory Base of Accountancy**

- 1.1. Developing awareness about Accountancy
- 1.2. Developing awareness about basic terms in Accountancy
- 1.3. Distinguishing between Accountancy and Book keeping
- 1.4 Gaining insight into the basic assumptions in Accountancy
- 1.5. Gaining insight into the basic principles of Accountancy
- 1.6. Developing awareness in the modifying principles of Accountancy

#### **Area 2: Origin and Recording of Transactions**

- 2.1. Developing awareness about the double entry system of Accountancy
- 2.2. Formulating the rules of debit and credit
- 2.3. Formulating Accounting equations
- 2.4. Gaining expertise in the preparation of Journal
- 2.5. Gaining expertise in the preparation of accounts.
- 2.6. Gaining expertise in the preparation of cash book
- 2.7. Developing expertise in the preparation of Purchases Day Book
- 2.8. Developing expertise in the preparation of Purchases Return Book
- 2.9. Developing expertise in the preparation of Sales Day Book
- 2.10. Developing expertise in the preparation of Sales Return Book
- 2.11. Preparing bank reconciliation statement

### **Area 3: Trial Balance and Errors**

- 3.1. To Prepare Trail Balance
- 3.2. Adopting appropriate procedure for rectifying errors

### **Area 4: Financial Statements**

- 4.1. Developing insights into the purposes of financial statement
- 4.2. Preparing trading account
- 4.3. Preparing profit and loss account
- 4.4. Preparing balance sheet

### **Area 5: Depreciation, Reserve and Provisions**

- 5.1. Developing the concept of depreciation
- 5.2. Gaining awareness about the methods of providing depreciation
- 5.3. Developing awareness about reserves and provisions
- 5.4. Adopting appropriate procedure for recording reserves provisions

**Area 6: Bills Of Exchange**

6.1. Developing awareness about bills of exchange

6.2. Gaining expertise in the accounting of bill transactions.

**Area 7: Accounting of Non- Trading Concerns**

7.1. Developing the concept of non-trading concerns

7.2. Preparing accounts of non-trading concerns

**Area 8: Accounts from Incomplete Records**

8.1. Developing awareness about single entry book keeping

8.2. Preparing accounts from incomplete records

**Area 9: Accounting for Partnership**

9.1. Developing awareness about the special aspects of partnership accounts

9.2. Preparing partners' capital accounts

9.3. Preparing profit and loss appropriation account

9.4. Analyzing the effect of admission of a partner on the accounts of the firm.

9.5 Adopting appropriate accounting procedure for recording goodwill on admission of a partner.

9.6. Adopting appropriate accounting procedure to record the revaluation of assets and liabilities of the firm.

9.7. Adopting appropriate accounting procedure on retirement/death of a partner

9.8. Settling the accounts on the dissolution of the firm

**Area 9: Company Accounts**

10.1. Developing awareness about the special feature of company

10.2. Using appropriate accounting procedure to record the raising of share capital

10.3. Adopting suitable accounting procedure to record forfeiture of shares

10.4. Developing the concept of debenture

10.5. Gaining expertise in the accounting procedure related to issue of debentures

10.6. Using suitable accounting procedure to record the redemption of debentures

10.7. Preparing the balance sheet of company

### **Area 11: Analysis of Financial Statements**

11.1. Acquiring awareness about the analysis of financial statement

11.2. Analyzing financial statement by calculating ratios.

11.3. Preparing find flow statement

11.4. Preparing cash flow statement

11.5. Preparing comparative financial statement

11.6. Interpreting the comparative financial statement

11.7. Preparing cash budget

### **7.7.2. Major Conclusions of the study**

The following are the major conclusions that emerged from the results of the analysis of the collected data.

**Conclusion I:** The Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching (CMT) in the mastery of competencies in accountancy among the higher secondary school students.

The above conclusion emerges from the following findings.

➤ *Students under the Competency Based Instruction (CBI) scored higher in the mastery of competencies in accountancy as measured through the criterion referenced test.*

- i) The mean pretest scores in the mastery of the experimental and control groups are 18.98 and 19.07 with standard deviation 2.78 and 2.63 respectively. The critical ratio is found to be 0.241. This shows that there is no significant difference between the pretest scores of students in the Competency Based Instructional (CBI) group and Conventional Method of Teaching (CMT) group ( $t = 0.241, p > 0.05$ ).
- ii) The mean posttest score of the experimental group is 83.17, while it is only 72.81 in the case of the control group. Hence there is a difference of 10.36 between the mean posttest scores of the experimental and control groups. The critical ratio is 5.967. ( $t = 15.967, p < 0.01$ ). Hence the difference is statistically significant at 0.01 level.
- iii) The mean gain score of the experimental group is 64.19 while it is 53.74 in the case of the control. The critical ration found to be 17.228 ( $t = 17.228, p > 0.01$ ). It indicates that the mean gain scores of the experimental group and control group differ significantly. It establishes that the experimental group (CBI) gain more from the instruction compared to the control group (CMT).

**Conclusion II:** The Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching (CMT) in respect of the mastery of both cognitive competencies and performance competencies in accountancy among the higher secondary school students.

The above conclusion is deducted from the following findings.

- *Students under the Competency Based Instruction (CBI) scored higher in the mastery of cognitive competencies and performance competencies in accountancy as measured through the criterion referenced test.*
- i) The critical value for the mean pretest scores in the mastery of cognitive competencies for the experimental and control group is 0.212 ( $t = 0.212, p > 0.05$ ). Hence it can be concluded that the experimental and control group does not differ significantly in respect of the mastery of cognitive competencies before the treatment.
- ii) The critical value for the mean posttest scores in the mastery of cognitive competencies for the experimental and control group is 15.648 ( $t = 15.648, p < 0.01$ ). It can be rightly concluded that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of cognitive competencies. As the mean posttest score of the mastery of cognitive competencies for the experimental group (CBI) is higher than that of the control group (CMT), the Competency Based Instruction is more

effective in respect of the mastery cognitive competencies in accountancy compared to the Conventional Method of teaching (CMT).

- iii) The test of significance of differences between the means pretest scores of the experimental and control group in the mastery of performance competencies in accountancy gives the critical value of 0.245. ( $t = 0.245$ ,  $p > 0.05$ ). Hence it can be concluded that the experimental and control group does not differ significantly in respect of the mastery of performance competencies in accountancy before the treatment.
- iv) The critical value for the mean posttest scores in the mastery of performance competencies in accountancy for the experimental and control group is 15.963 ( $t = 15.963$ ,  $p < 0.01$ ). It is concluded that there exist significant difference between the mean posttest scores of the experimental and control group in the mastery of performance competencies. As the mean posttest score of the mastery of performance competencies for the experimental group (CBI) is higher than that of the control group (CMT), the Competency Based Instruction is more effective in the mastery of performance competencies in accountancy.

**Conclusion III:** There is no gender difference in respect of mastery of competencies in accountancy, i.e. boys and girls master competencies in accountancy at an equal rate.

The above conclusion is deducted from the following findings.

➤ *The scores of boys and girls in the mastery of competencies in accountancy did not differ significantly as measured through the criterion referenced achievement test.*

- i) The mean pretest scores of the boys and girls in the experimental group are 19.02 and 18.95 respectively. The critical ratio is found to be 0.127. ( $t = 0.127, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the Competency Based Instructional (CBI) group.
- ii) The mean pretest scores of the boys and girls in the control group are 19.58 and 18.59 respectively. The critical ratio is found to be 0.281. ( $t = 0.281, p > 0.05$ ). This shows that there is no significant difference between the pretest scores of boys and girls in the control group, i.e., the Conventional Method of Teaching (CMT) group.
- iii) The mean posttest score of the boys in the experimental group (CBI) is 83.16, while it is 83.19 in the case of girls. When means posttest scores of boys and girls of the experimental group were compared, the CR obtained is 0.033 ( $t = 0.033, p > 0.05$ ). So the boys and girls in the experimental group do not differ in respect of their mastery of competencies.

- iv) The that mean posttest score of the boys and girls in the control group is 72.56 and 73.03 respectively. The critical ratio obtained, when means posttest scores of boys and girls of the experimental group were compared is 0.552. ( $t = 0.552, p > 0.05$ ). Therefore there exists no significant difference between the mean posttest scores of boys and girls in the control group.
- v) The mean gain scores of the boys in the experimental group is 64.14 and of the girls is 64.23. The critical ratio is found to be 0.125. ( $t = 0.125, p > 0.05$ ). It indicates that that the meagre difference between the mean gain scores of the boys and girls in the experimental group is not statistically significant. Hence the boys and girls in the experimental group gain more or less equally from the Competency Based Instruction.
- vi) The mean gain score of the boys in the control group is 52.98 and of the girls is 54.44. The critical ratio is found to be 1.555. ( $t = 1.555, p > 0.05$ ). It indicates that that the meagre difference between the mean gain scores of the boys and girls in the control is not statistically significant. Hence the boys and girls in the control group gain more or less equally from the Conventional Method of Teaching.

**Conclusion IV:** The Competency Based Instruction (CBI) is more effective than the Conventional Method of Teaching (CMT) in respect of the extent of mastery of competencies in accountancy among the higher secondary school students.

The above conclusion is deduced from the following findings.

➤ *The percentage of masters of competencies in accountancy in the Competency Based Instruction (CBI) group is higher than the Conventional Method of teaching (CMT) group.*

i) The percentage of masters of competencies in accountancy in the experimental group is 88.52 while it is 16.95 in respect of the control group. The critical value obtained for the difference between percentages of masters in the experimental group and control group in respect of the total competencies is 10.882 ( $t = 10.882$ ,  $p < 0.01$ ). This means that the difference between the percentage of masters in the experimental group (CBI) and control group (CMT) are statistically significant.

ii) The critical value obtained when the experimental group and control group is compared in respect of the percentages of masters in cognitive and performance competencies are 10.901 and 10.882 respectively. As these obtained values of 't' is above the table values, we can conclude that the difference between the percentages of masters in experimental and control groups in respect of cognitive and performance competencies are also statistically significant at 0.01 level ( $t = 10.901$  &  $t = 10.881$ ,  $p < 0.01$ )

**Conclusion V:** The Competency Based Instruction (CBI) has a positive impact on the attitude of students towards accountancy.

The above conclusion is derived from the following findings.

➤ *The students under the Competency Based Instruction (CBI) scored higher in the posttest of attitude towards accountancy compared to the students under Conventional Method of teaching (CMT).*

- i) The mean pretest scores of attitude towards accountancy of the experimental and control group are 46.62 and 46.93 respectively. The critical ratio obtained for the pretest scores of attitude towards accountancy of the experimental and control group is 0.647. ( $t = 0.647$ ,  $p > 0.05$ ). Hence the difference is statistically not significant. It means that there is no significant difference between the pretest scores of attitude towards accountancy of the experimental group (CBI) and control group (CMT) before the treatment.
- ii) The mean posttest scores of attitude towards accountancy of the experimental and control group are 75.33 and 64.40 respectively. The comparison of the mean posttest scores of attitude towards accountancy for the experimental (CBI) and control (CMT) groups give a critical ratio of 13.58. So there exist significant difference between the posttest scores of attitude towards accountancy of students in the experimental (CBI) and control (CMT) groups ( $t = 13.58$ ,  $p < 0.01$ ).

**Conclusion VI:** The Competency Based Instruction (CBI) has a positive impact on the self esteem of students.

The above conclusion is deducted from the following findings.

➤ *The students under the Competency Based Instruction (CBI) have higher self esteem scores compared to the students under the Conventional Method of teaching (CMT) in the posttest.*

- i) The mean pretest scores of self esteem of the experimental and control group are 55.70 and 56.45 respectively. The critical ratio obtained for the pretest scores of self esteem of the experimental and control group is 1.784. ( $t = 1.784, p > 0.05$ ). Hence the difference is statistically not significant. It means that there is no significant difference between the pretest scores of attitude towards accountancy of the experimental group (CBI) and control group (CMT) before the treatment.
- ii) The mean posttest scores of self esteem of the experimental and control group are 73.47 and 64.53 respectively. The comparison of the mean posttest scores of self esteem for the experimental (CBI) and control (CMT) groups gives a critical ratio of 9.817. So it is concluded that there exist significant difference between the posttest scores of self esteem of students in the experimental (CBI) and control (CMT) groups ( $t = 9.817, p < 0.01$ ). As the mean post test score of the experimental group (CBI) is higher than that of the control group

(CMT), we can attribute this difference to the treatment, i.e. to the Competency Based Instruction. So it can be rightly conclude that the Competency Based Instruction is contributing more to the self esteem of the students compared to the Conventional Method of Teaching.

### **7.8. SUGGESTIONS FOR IMPLEMENTATION**

The value of any piece of research in education lies in the implication of the study. The present study verified the effectiveness of competency based instruction in the attainment of mastery level learning in accountancy among higher secondary school students. The study has identified the competencies and sub competencies to be developed by the higher secondary students in accountancy as there is no predefined list of competencies. The implications of the study are:

- ✓ Lightening the curriculum of its textual load and also the burden of memorising unnecessary and irrelevant facts
- ✓ Leaving room for teachers to relate learning materials with objective reality into a meaningful process of understanding and competence development
- ✓ Ensuring the acquisition of essential competencies in each area to such a level where they are sustainable
- ✓ Permitting mastery not only by the brighter learners in the class but also by almost all learners, including the slow learners.

Based on the present study some practical suggestions offered will be helpful to policy makers to improve the quality of higher secondary education especially in accountancy related areas.

Many of the teachers have no proper pedagogic background. Teachers are not focusing on the competencies to be developed in students while teaching different areas. Hence authorities may prepare source books and other learning materials to ensure the mastery of desired competencies by all learners.

Laying down well defined levels of learning, strategies to attain that level and learning materials to master the competencies will introduce a sense of direction and greater element of accountability in the system. It is often pointed out that neither teachers nor students and as a consequence, nor parents and educational planners seem to know where they are and where they ought to be. This situation can be effectively overcome by implementing a competency based system of education.

Without clearly defined criteria for measuring students' progress, it is not surprising that the teachers lose sight of their goals. So the traditional measure of student progress should be substituted with the measure of actual attainment of competencies.

A profession in any field, especially in the business field demand a lot of skills and competencies. Competency based instruction is the only way to ensure the development of these skills and competencies among the students who are the potential work force. The strategy adopted in the study can be

adopted to impart business and accountancy education and there by to develop a more refined professionals.

### **7.9. SUGGESTIONS FOR FURTHER RESEARCH**

The present study is not much comprehensive and exhaustive due to the limitations of a doctoral work. There as some limitations in its scope and design. Still the study brings light to a number of areas to be covered by further research, if a complete picture of the problems under study to be obtained. The possibilities of further research are given below.

1. The effectiveness of competency based instruction is verified in accountancy at higher secondary level in terms of mastery. This can be repeated at all levels of accountancy education both in vocational and non vocational courses.
2. The present study have not analysed the job market and employers' expectations to identify the competencies expected by them from a candidate. So the study can be enriched by analysing actual job areas and the employer expectations as well as the opinion of workers in the field.
3. In the present study modules has been used to impart competency based instructions. Study can be repeated with other strategies like programmed instruction, computerised instruction etc.
4. In the present study only mastery, attitude of students and self esteem have been taken into account. The study can be enhanced by incorporating other variables like multiple intelligences, job preferences of students etc.
5. The present study can be repeated on a state wide or nation wide basis.

6. The present study confirms the effectiveness of the Competency Based Instruction in the Kerala State School setup under the supervision of teachers. Hence the scope this approach in the field of distance education may be studied.
7. There is a scope for a major study to identify the competencies to be developed by the learners at different levels of higher education.
8. Effectiveness of competency based instruction in other subjects at higher secondary level can be studied.

The investigator is of the view that the present study is useful if the findings lead the curriculum designers and policy makers to promote the implementation of Competency Based Instruction in accountancy and other subjects, development of competency based instructional materials for learning different subjects at different levels of education, researchers to undertake further studies in this field.

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**COMPETENCY BASED  
INSTRUCTIONAL  
MODULES  
IN ACCOUNTANCY  
FOR STANDARD XI**

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## OVERVIEW

This booklet is intended as a self study material of accountancy for the students of standard XI. It deals with three areas in accountancy (Origin and Recording of Transaction, Trial Balance, and Financial Statements). Compared to your text book, a different method of presentation is used here. It is carefully planned in accordance with the competencies aimed to develop. This booklet contains fourteen modules. Teacher will give direction and support as and when required. To perform the various learning activities, required materials (appropriate worksheets) will be provided.

# MODULE No. 1

**Area** : **Origin and**  
**Recording of Transactions**

**Competency** : *To develop awareness about the double entry system of Accountancy*

**Objectives:**

This module will help you to develop a deep understanding of the double entry system of accountancy. On completion of this module you will be able to:

- Describe the double entry system of Accountancy
- Identify the double aspects of each transaction
- Develop the principles of double entry
- Justify the practice of double entry system of Accountancy

**Introduction**

You are familiar with the duality concept of accountancy. As per the duality concept there will be two aspects for every transactions, i.e., a receiving aspect and a corresponding giving aspect. They are known as *debit aspect* and *credit aspect* respectively. You can identify these two aspects in every business transaction.

**Activity-1.1**

Some transactions are given below. Find out the dual aspects of the transactions and record the same in the space provided:

1. Kumar purchased furniture for Rs 20000
2. Rahim sold machinery for Rs 10000

3. Paid to creditors Rs 5000
4. Received interest Rs 200
5. Paid rent Rs 500

Transaction No.	Receiving Aspect	Giving Aspect
1	Furniture	Cash
2		
3		
4		
5		

You have identified the dual aspects of the transactions i.e., the receiving aspect and the giving aspect.

### **Debit and Credit**

The receiving aspect of a transaction is called as **Debit** and the giving aspect of a transaction is called as **Credit**

### **Activity-1.2**

Now you are familiar with debit and credit aspects of transactions. Write any five transactions that usually take place in business organisations and identify their debit and credit aspects.

Transaction	Debit	Credit
1.		
2.		
3.		
4.		
5.		

From the above activity you might find that every transaction affects at least two accounts and each transaction has at least two aspects - a debit and a credit aspect. This is the fundamental base upon which the entire double entry system of accounting is built up.

**Fundamental Principle of Double Entry System of Accounting**

Every transaction has at least two aspects - a **debit aspect** and a **credit aspect**

You have learnt that every transaction has two aspects i.e., a debit aspect and a credit aspect. Both these aspects are to be recorded in the book of accounts under the double entry system of accounting.

**Double Entry System of Accounting**

The recording of the debit aspect and credit aspect of a transaction in the books of accounts is called the *Double Entry Bookkeeping* or *Double Entry System of Accounting*.

**Activity- 1.3**

Mr. Jeevan is a business man. He wants to know why he is required to keep his books of accounts under double entry system. Discuss it in your group and advise Mr. Jeevan regarding the need of keeping books under the double entry system of accounting. Your teacher will help you. Write your suggestion in the space provided below.

Mr. Jeevan has to follow the double entry system, because:

➤ -----  
-----

➤ -----  
-----

➤ -----  
-----

➤ -----  
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***Formative Evaluation***

1. What is double entry system of accounting?
2. What is the fundamental principle of double entry system?
4. What is the importance of following double entry system of accounting?

**MODULE No. 2**

**Module No. 2**

***Area : Origin and Recording of Transactions***

**Competency** : To formulate the rules of debit and credit

**Objectives:**

This module will help you to formulate the rules of debit and credit, the understanding of which is very much essential for performing the accounting job. On completion of this module you will be able to:

- To describe the effect of transactions on various accounts
- To develop the rules of debit and credit for different types of accounts
- To apply the rules to find the debit and credit aspects of transactions

**Introduction**

From the previous module you have learnt that every transaction has dual aspect i.e., one **Debit** and one **Credit**. You are also familiar that there are different types of accounts like account of assets, accounts of liabilities, accounts of capital, accounts of income and accounts of expenses. For recording transactions in the books of accounts we have to identify the debit and credit aspect (i.e., the dual aspects) of each transaction.

**Activity 2.1**

Identify the **Debit** and **Credit** aspects of the following transactions. Also mention whether they belong to assets, expenditure, income, capital, or liability.

1. Gokul started business with cash Rs. 50,000
2. Purchased buildings with cash Rs. 25,000
3. Salary Paid Rs. 1,000
4. Interest received Rs. 500
5. Purchased furniture Rs. 4,000
6. Purchased from Kumar on credit for Rs. 20,000
7. Sold to Anil for Rs. 1,000
8. Electricity charge paid Rs. 250
9. Repairs to Machinery Rs. 500
10. Rent paid Rs. 200

<i>Trn. No.</i>	<i>Debit</i>	<i>Nature of A/c</i>	<i>Credit</i>	<i>Nature of A/c</i>
1	Cash A/c	Asset	Capital A/c	Capital
2				
3				
4				
5				
6				
7				
8				
9				
10				

Analyse the effect of *debit* and *credit* on each type of accounts. Some types of accounts increase as a result of a debit, while some other type of accounts decrease due to debit.

### **Activity 2.2**

Go through the activity No. 1 and analyse the effect of debit and credit on different types of accounts and describe the same in the table provided below.

<i>Type of accounts</i>	<i>Debit</i>	<i>Credit</i>
1. Assets	Increase	Decrease
2. Liabilities		
3. Capital		
4. Expenses		
5. Revenue (Income)		

From the above activity you have developed the rule of debit and credit. Now we can state it as follows:

### Rules of Debit and Credit

- Increase in asset is debit and decrease in asset is credit
- Increase in liability is credit and decrease in liability is debit.
- Increase in capital is credit and decrease in capital debit.
- Increase in expenses is debit and decrease in expenses is credit.
- Increase in revenue is credit and decrease in revenue is debit.

### Activity 2.3

Go to a nearby business house and record any ten transactions that have been taken place there. Find out the debit and credit of the transactions on the basis of the rules that we have developed.

Sl.N o	Transaction	Debit	Rule	Credit	Rule
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Now you know how to identify the debit and credit aspect of any transaction with the help of the accounting rule.

The following rules are also used for identifying the debit and credit of transactions. These rules are known as alternative rules.

<b>Alternative Rule of Debit and Credit or the British Rule</b>	
Real Account:	Debit what comes in Credit what goes out
Personal A/c :	Debit the receiver Credit the giver
Nominal A/c :	Debit all expenses and losses Credit all incomes and givers

***Formative Evaluation***

1. Write any three business transactions and their debit and credit aspects.
2. What is the rule of debit and credit for different types of accounts?

**MODULE No. 3**

**Area : Origin and Recording of Transactions**

**Competency : To develop the Accounting Equations**

**Objectives:**

This module will help you to develop the accounting equations. On completion of this module you will be able to:

- To find Accounting equations
- To describe the Accounting equations
- To analyse the transactions using Accounting equations

### ***Introduction***

The resources of a business are referred to as its assets. For a new business, those assets originate from two possible sources:

- Investors who buy ownership in the business
- Creditors who extend loans to the business

You know that the total assets of a firm will be equal to the total equity i.e.,

$$\text{Assets} = \text{Equity} \quad (1)$$

You are familiar that the assets are the resources which are owned by a business concern. Equity represents the total claims against the assets of the business. The equity is of two types: The owners' equity and outsiders' equity. Owners' equity is the ***Capital*** invested by the owners in the business and outsiders' equity is the claim of the third parties i.e., ***liabilities***.

$$\text{Thus, Equity} = \text{Owners' equity} + \text{Outsiders' equity} \quad (2)$$

$$\text{That is, Equity} = \text{Capital} + \text{Liabilities} \quad (3)$$

Thus equation (1) can be written as follows:

$$\text{ASSETS} = \text{CAPITAL} + \text{LIABILITIES}$$

Can you write other forms of the equation? (Discuss in your group. Your teacher will help you)

$$\text{Capital} =$$

$$\text{Liabilities} =$$

To better understand the accounting equation, consider the following example. Mike Peddler decides to open a bicycle repair shop. To get started he rents some shop space, purchases an initial inventory of bike parts, and opens the shop for business. Here is a listing of the transactions that occurred during the first month:

Date	Transaction
Sep 1	Owner contributes Rs 7500 in cash to capitalize the business.
Sep 8	Purchased Rs 2500 in bike parts on account, payable in 30 days.
Sep 15	Paid first month's shop rent of Rs 1000.
Sep 17	Repaired bikes for Rs 1100; collected Rs 400 cash; billed customers for the Rs 700 balance.
Sep 18	Rs 275 in bike parts were used.
Sep 25	Collected Rs 425 from customer accounts.
Sep 28	Paid Rs 500 to suppliers for parts purchased earlier in the month.

These transactions affect the accounting equation as shown below.

	Assets					=	Liabilities + Owner's Equity				
	Cash	+	Bike Parts	+	Accounts Payable	=	Accounts Payable	+	Capital Peddler,	+	Revenue (Expenses)
Sep 1	7500					=			7500		
Sep 8			2500			=	2500				
Sep 15	(1000)					=					(1000)
Sep 17	400				700	=					1100
Sep 18			(275)			=					(275)
Sep 25	425				(425)	=					

Sep 28	(500)					=	(500)				
Totals:	6825	+	2225	+	275	=	2000	+	7500	+	(175)
	9325					=	9325				

Note that for each date in the above example, the sum of entries under the "Assets" heading is equal to the sum of entries under the "Liabilities + Owner's Equity" heading. In most of these cases, the transaction affected both sides of the accounting equation. However, note that the Sep 25 transaction affected only the asset side with an increase in cash and an equal but opposite decrease in accounts receivable.

At the end of the month of September, the net income (revenues minus expenses) is closed to capital and the balance sheet for the business would appear as follows:

Peddler's Bikes Assets and Liabilities as on September 30			
<b>Assets</b>		<b>Liabilities &amp; Owner's Equity</b>	
Cash	6825	Accounts Payable	2000
Accounts Receivable	275	Peddler, Capital	7325
Bike Parts	2225		
<b>Total Assets</b>	<b>9325</b>	<b>Total Liabilities</b>	<b>9325</b>

### Activity 3.1

From the following ascertain the amount of capital:

Cash	Rs 10000
Furniture	Rs 20000
Stock og goods	Rs 25000
Machinery	Rs 45000
Creditors	Rs 10000
Bank Loan	Rs 15000

Here, the total value of assets is:

Assets	Amount
--------	--------

Total	

Total liability is:

Liabilities	Amount
Total	

So calculate the value of capital using the Accounting Equation that you have learned.

Capital =
-----------

Now let us examine the effect of some transactions.

1. Kiran started business by investing Rs 100000 as capital
2. Purchased furniture Rs 25000
3. Kiran borrows Rs 50000 from bank
4. Purchased goods worth Rs 40000 on credit from Manohar
5. Sold goods worth Rs 10000 for cash Rs 15000

The effect of these transactions can be depicted as follows.

Equation Transaction	Assets =					Liabilities+ Capital	
	Cash	Bank	Debtors	Stock	Furniture	Creditors	Capital
Started business	+100000	-	-	-	-	-	100000
Purchased furniture	-25000	-	-	-	+25000	-	100000
<i>New Equation</i>	<b>75000</b>	-	-	-	<b>25000</b>		<b>100000</b>
Borrowed from bank	+50000	-	-	-	-	+50000 (Bank Loan)	100000
<i>New</i>	<b>125000</b>	-	-	-	<b>25000</b>	<b>50000</b>	<b>100000</b>

<i>Equation</i>							
Purchased goods	-40000	-	-	+40000	-	-	100000
<i>New Equation</i>	<b>85000</b>			<b>40000</b>	<b>25000</b>	<b>50000</b>	<b>100000</b>
Sold goods	+15000			-10000	-	-	105000
<i>New Equation</i>	<b>100000</b>			<b>30000</b>	<b>25000</b>	<b>50000</b>	<b>105000</b>

### **Activity 3.2**

Analyse the following transactions and show how the accounting equations is affected. (Worksheet No.2)

1. Latheef started business with : Cash Rs 50000, Stock Rs 100000, Furniture Rs 50000, Land & Buildings Rs 300000
2. Purchased Machinery Rs 25000
3. Deposited Rs 40000 with SBT
4. Purchased goods from Kumar Rs 30000
5. Sold goods for Rs 20000 ( Cost Rs 15000)
6. Sold goods to George Rs 25000 (Cost Rs 20000)
7. Paid to Kumar Rs 15000
8. Paid rent Rs 1000, Salary Rs 5000
9. Latheef withdrawn for personal use Rs 8000
10. Received cash from George Rs 12000

#### ***Formative Evaluation***

1. What are accounting equations?
2. What is the procedure for analysing various transactions using the accounting equations?

## **MODULE No. 4**

**Area : Origin and Recording of Transactions**

**Competency :** Gain expertise in the preparation of Journal

**Objectives:**

This module will help you to gain expertise in the preparation of journal.

On completion of this module you will be able to:

- To draw the correct format for preparing journal
- To use appropriate rules for journalising transaction.
- To pass entries for recording transactions
- To describe the steps involved in the process of journalising

**Introduction**

You know what double entry system of accounting is. In double entry system of accounting the debit aspect and credit aspect of a transaction is recorded in the books of accounts.

Accounting under the double entry system is divided into two stages.

1. Recording of transactions in the Journal
2. Items are posted from the journal to ledger.

Journal means daily record. It is a book used for making primary record of day to day transaction chronologically i.e., in the order of their occurrence. It is the book of original entry.

### **Journal**

Journal is a day book where transactions are firstly recorded in chronological order.

### **Activity 4.1**

List out the matter that is required to be recorded in the journal

- Date of transaction
- 
- 
- 
- 

Discuss the matters to be recorded in the journal in your group and then consult your teacher. Now you know what the things to be recorded in the journal.

### **The Process of Journalising**

The Journal is called the book of original entry and the process of recording transactions in the journal is called journalising. The following are the steps for journalising transactions:

1. The year is recorded at the top of the page and the month is recorded on the first line in the first column of the date section. This information is repeated for every new journal page.
2. The date of the first transaction is entered in the date column.
3. The name of the account(s) to be debited is entered in the description column and the amount of the debit is recorded in the Debit column. When more than two accounts are involved in the transaction the entry is called a compound entry.
4. The name of the account(s) to be credited is entered on the next line and indented. The amount of the credit is recorded in the Credit column.
5. An explanation of the transaction is included in the description column on the line below the credit entry.

#### **Narration**

A brief explanation about the transaction given in the description (Particulars) column of the journal

## Journalising

called journalising

Now let us develop a format for recording these details. You have found that the details of transactions like date, debit aspects, credit aspects, debit amount, credit amount etc. should be recorded in the journal.

### Journal

Date	Particulars	F	Debit	Credit

### Activity 4.2

You know that date, the details of transactions, debit amount, credit amount etc., should be recorded in the journal. Discuss in your group and develop a format for recording these details. Draw the format in the worksheet provided. (Work Sheet No. 1)

\*\*\*\*\*

Let us discuss how the transaction 'cash received from Kumar Rs 5000 on 2<sup>nd</sup> January 2004' is to be recorded in the journal.

You know that, here 'cash' is the debit aspect and 'Kumar' is the credit aspect. So the journal entry will be as follows.

### Journal

Date	Particulars	L.F	Debit Amount	Credit Amount
2004 Jan 2	Cash Account Dr. Kumar's Account (Cash received from Kumar)		5000	5000

### **Activity 4.3**

Record the following transaction of Samuel for the month of May, 2003 in his journal (worksheet No.3 )

1. Samuel started business with cash Rs. 50,000
2. Paid in to bank Rs. 20,000
5. Cash purchases Rs 10000
8. Sold to Ramu Rs 2000
11. Credit purchases from Gokul Rs 6000
15. Received from Ramu Rs 2000
18. Cash sales Rs 5000
21. Paid rent Rs 1000
25. Withdrawn from bank Rs 1500
31. Paid salary Rs 2500

### **Formative Evaluation**

1. What is journal?
2. What are the steps involved in the process of journalising?

## **MODULE No. 5**

**Area : Origin and Recording of Transactions**

**Competency : To Prepare Ledger Accounts**

**Objectives:**

This module will help you to gain expertise in the preparation of accounts. On completion of this module you will be able to:

- To use correct format for preparing accounts
- To post entries in appropriate accounts
- To balance accounts accurately
- To interpret account balances
- To describe the process of preparing accounts

**Introduction**

You have learnt that journal is the day book in which transactions are recorded in the chronological order, i.e., in the order of their occurrence. Is it possible to get complete information regarding a particular item from the journal very easily, like the amount payable to suppliers or amount receivable from customers, the total amount spend on various item etc. If you want to know the exact amount payable to a supplier you have to go through the entire pages of the journal. It is not an easy task. In order to avoid this difficulty, all transactions affecting a particular item are recorded in one place. Such a book wherein transactions of similar nature are grouped together in one place is called Ledger.

In the journal all transactions are recorded in the order of happening. But transactions are classified i.e., similar transactions are grouped together and recorded in the ledger.

### **Ledger**

Ledger is a book where transactions of similar nature are grouped together in one place in the form of accounts

### **Activity 5.1**

(Materials Required: Worksheet No.1)

Discuss the uses of ledger and record your findings in the worksheet provided.

The ledger consists of a number of accounts. How these accounts look like? An account has two sides. – one debit side and one credit side. In each sides there will be columns to record date of transaction, particulars of the transaction, JF, amount etc.

### **Activity 5.2**

(Materials Required: Worksheet No.1)

Design a format for ledger account. Your teacher will help you.

You have learnt to draw ledger accounts. Every journal entry will have to be transferred to the respective accounts in the ledger. The process of recording information given in the journal to the ledger is termed as posting.

#### **Posting**

The process of transferring the entries from the journal to the ledger is called posting.

Now let us learn how to make posting from journal to ledger. Consider the following transaction.

Purchased machinery for Rs. 20,000 on 1<sup>st</sup> January, 2004.

As you know in this transaction the two aspects are ‘machinery’ and ‘cash’. Thus the journal entry will be:

2003 January, 1.	Machinery account	Dr.	25,000	
	Cash account			20,000
	(Being Machinery purchased)			

Here we have to open two accounts. i.e. Machinery Accounts and Cash account. In the above journal entry the debit aspect is machinery. So the posting is to be done on the debit side of machinery account. This is done by writing the name

of the other aspect (i.e., Cash account) in the particulars column. Similarly, cash account is the credit aspect in this transaction. So posting should do on the credit side of the cash account.

### **Activity 5.3**

(Materials Required: Worksheet No.1)

Draw accounts and post the above journal entry in the machinery account and cash account.

*We have to remember the following points while recording transaction in the ledger accounts.*

- Take the debit and credit aspect of the transaction and open necessary accounts
- All transactions must be posted in the order of dates
- The date of the transaction must be entered in the date column
- For debit aspect of the journal entry, posting should be made on the debit side. For credit aspect of the entry posting is done on the credit side of the account
- While posting on the debit side of an account in the particulars column, we shall write the name of the account which has been credited in the journal. Similarly, while posting on the credit side of an account, we shall write the name of the account which has been debited in the journal.
- In the journal folio column, we shall mention the page number of the journal where concerned journal entry appears.
- In the amount column in the debit side, the amount of the debit account is written and in the credit side of the amount of the credit account is written.

While posting, it should be born in mind that in no case the name of the account should appear as an entry in that account. But the name of the account in which the corresponding entries appears should be inserted.

### **Activity 5.4**

(Materials Required: Worksheet No.4)

Following are the some entries taken from the journal Mr. Kumar. Post the entries of the following journal to the respective accounts.

Date	Particulars	LD	Debit Rs.	Credit Rs.
2004 Jan. 1	Cash Account Dr. Kumars' Capital Account (Commenced business with cash)		1,50,000	1,50,000
2004 Jan 10	Purchases Account Dr. Cash account (Purchased goods for cash)		5,000	5,000
Jan 15	Wages Account Dr. Cash account (Paid wages)		1,000	1,000
Jan 30	Suresh's Account Dr. Sales account (goods Sold on Credit)		4,000	4,000

***Hint for preparing ledger accounts.***

In the first entry 'Cash Account' is the debit aspect. So we have to post in the debit side of the cash account by writing 'Kumar's Capital Accounts' in the particulars column. The amount shown against cash account in the journal is entered in the amount column. Since the credit aspect is 'Kumar's Capital Account', we have to post on the credit side of Kumar's Capital Account by writing "Cash Account" in the particulars column and amount shown against Kumar's capital account in the journal is entered in the amount column.

In the same way post other journal entries also.

**Activity 5.5**

(Materials Required: Worksheet No.2 & 3)

Journalise the following transactions and post then into respective accounts.

Mr. Sanker started business on March 1, 2004 with a capital of Rs 2,50,000. His transactions for the month are given below.

2003	March	1	Opened a bank account with Rs 1,50,000
		2	Purchased machinery for Rs 50,000
		3	Cash purchases Rs 60000
		4	Bought furniture and paid by cheque Rs 8000
		7	Purchased goods from Hari&Sons Rs 8000 on credit
		10	Sold goods to Mohan Rs 12000
		12	Purchased motor van Rs 70000 paid by cheque
		15	Received from Mohan cash Rs 8000
		17	Withdrew cash from bank Rs 5000
		20	Paid Hari&Sons Rs 2000
		21	Paid rent Rs 1000
		22	Received interest Rs 500
		24	Sold goods to Jeevan Rs 8000 on credit
		26	Paid wages Rs 5000
		27	Received commission Rs 750
		28	Paid salaries Rs 2500
		30	Paid insurance Rs 500
		31	Recieved from Jeevan cheque for Rs 5000

Now you are familiar with the preparation of Ledger accounts. How can we know the net effect of various transactions in a particular account? For this purpose we have to work out the balance of the account. Balance is the difference between the total of debit and credit side of an account.

If the debit side of an account is more than its credit side, it indicates a debit balance. If the credit side of an account is more than its debit side it indicate a credit balance.

### ***Balancing***

The process of finding out the balance of ledger accounts is known as balancing.



2003 Apr 1 5	Anil's capital Sales A/c		10000 2000	2003 Apr 2 10 30	Bank A/c Purchases A/c Balance c/d		5000 3000 4000
			<u>12000</u>				<u>12000</u>
May1	Balance b/d		4000				

### Activity 5. 6

The following are some of the accounts kept in the books of Mr. Anil. Help him to know the outstanding balance in each account.

Dr. Anil's Capital Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003 Apr 1 5	Cash A/c Bank A/c		100000 20000	2003 Apr30	Balance c/d		
			<u>120000</u>				<u>120000</u>
May 1	Balance b/d						

Dr. Furniture Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003 Apr 1 5	Cash A/c Bank A/c		10000 5000	2003 Apr30	Balance c/d		
	Balance b/d		<u>          </u>				<u>          </u>
May 1			<u>          </u>				<u>          </u>

Dr. Salary Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003 Apr3	Bank A/c		10000	2003 Apr30	Balance c/d		

0							
May1	Balance b/d						

Dr. Kumar's Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	JF	Amount
2003 Apr10	Cash A/c		10000	2003 Apr 1	Purchases		25000
25	Bank A/c		2000	10	Purchases		15000
30	Balance c/d			May1	Balance b/d		

Dr. Sales Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003 Apr30				2003 Apr 1	Cash		45000
			=====	10	Suresh's A/c		5000
			-----	May1			-----

Dr. Suresh's Account Cr.

Date	Particulars	JF	Amount	Date	Particulars	J F	Amount
2003 Apr10	Sales a/c		5000	2003 Apr			
			2000				
			=====				-----
			-----				-----

### Activity 5.7

(Materials Required: Worksheet No 2 & 3)

M/s. Kumar & Sons started business on 1 may 2003 with Rs 200000. Their transactions for the month are given below. Record them into the journal and post them into respective accounts and find the balance of each account.

1. Opened a bank Account with Rs 50000
2. Purchased goods from Prakash Rs 20000
4. Sold goods Rs 15000
5. Paid wages Rs 500
8. Purchased goods for Rs 40000
9. Purchased furniture Rs 10000
11. Sold goods to Gopal Rs 5000
13. Commission received Rs 1000
15. Paid to Prakash Rs 5000
18. Received from Gopal cheque for Rs 4000
20. Cash sales Rs 8000
21. Purchased goods from Prakash Rs 8000
22. Cash sales Rs 3000
25. Rent paid Rs 1000
30. Salary paid Rs 4500
30. Cash sales Rs 3500

***Formative Evaluation***

1. What is an account?
2. Draw a format of account
3. Describe the process of balancing accounts

<b>MODULE No. 6</b>
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**Area : Origin and Recording of Transactions**

**Competency** : To Gain expertise in the preparation of cash book

**Objectives:**

This module will help you to gain expertise in the preparation of cash book. On completion of this module you will be able to:

- Use suitable format for preparing cash book
- Use appropriate title while preparing cash book
- Record transactions correctly in the cash book
- Balance the cash book accurately
- Post entries from cash book to appropriate accounts
- Describe the process of preparing different types of cash books

**Introduction**

You know that journal is a book of prime or original entry. All transactions are first recorded in the journal. But when the size of the business and number of transactions are large, recording of transactions in one journal will be inconvenient. Many of the transactions such as purchases, sales etc are occurring frequently. If separate books are maintained for recording transactions of similar nature, journalizing and posting will be easier and convenient. For example all cash transactions may be recorded in one book; all credit purchases of goods in another book and so on. Thus journal is divided into many subsidiary books called special journal.

Any business man has to make so many cash transactions. He may receive cash from his debtors, from sale of goods, withdraw cash from banks etc. and similarly he may make payments to his creditors, employees etc. it is better to record all the cash transaction in one special journal. Such a day book or journal in which all cash transactions are entered is known as 'cash book'.

**Cash book**

Cash book is the book where all transactions relating to cash receipts and cash payment are recorded.

A cash book is ruled like a ledger account with two sides—debit side and credit side. So there is no need to open a separate ledger account for cash. Therefore cash book is both journal and ledger.

### **Activity 6.1**

(Materials Required: Worksheet No.1)

Given below some transactions of Mr. Kumar, a businessman, which among them can be record in the cash book?

1. Kumar started business with Rs. 5,00,000
2. Purchased land and Building Rs 2,00,000
4. Purchased from Daven for Rs.5,000 on credit
5. Purchases goods for Rs 50000
6. Sold goods for Rs 4000
7. Rent paid Rs 500
8. Sold goods to M/s M.K Menon & Sons Rs 6000
9. Bought furniture for Rs 8000
10. Paid into bank Rs 7000

You know that cash book is ruled like a ledger account. But there shall be additional columns to Record receipt No. on the receipt side (debit side) and Voucher No. in the payment side (credit side) of the cash book.

### **Activity 6.2**

(Materials Required: Worksheet No.1)

Draw the format of cash books in the worksheet provided.

You can find that the cash book is divided in to two sides. Receipt side and payment side. On the debit side all receipts of cash are recorded and on the credit side all payments are recorded.

You have drawn cash book with only one amount column on both sides. So these types of cash book is called single column Cash Book or Simple Cash Book.

Recording of transactions in the single column cash book is similar to that of recording of entries in the ledger accounts.

➤ On the date column, the date on which transaction has taken place is entered.

- In the particulars column of the receipt side record the name of account from which cash is received.
- In the particulars column of the payment side record the name of account to which payment is made.
- Enter receipt number and voucher number in the columns provided.
- Record amount of receipts in the debit amount column and amount of payments in the credit amount column.

Balancing of cash book is done in the same way as that of an account.

### **Activity 6.3**

(Materials Required: Worksheet No. 5)

Mr. Amen commenced business on 1<sup>st</sup> January, 2003 with cash Rs.1,00,000 as capital. The following cash transaction took place in the month of January 2003. You are required to record the transactions in the simple column cash book of Mr. Amen.

2. Purchased goods	10000
4. Paid into bank	10000
6. Rent paid	1000
10. Cash sales	15000
15. Paid to Mohan	8000
20. Cash received from Kumar	7000
23. Cash withdrawn from bank	6000
30. Paid salary	2500
31. Paid insurance	500

You know that entries in the journal are to be posted to concerned ledger account. Since cash book is a journal, items appearing in the cash book are also to be posted to appropriate ledger accounts. Where should the items appearing on the receipt side of the cash book to post?

\*

When the items appearing on the payment side of the cash book should be required to post?

\*

### Activity 6.4

(Materials Required: Worksheet No. 4 & 5)

Record the following transaction in the single column cash book and post them into respective ledger accounts and also bring down the balances.

2003 March, 1 Opening balance of cash	2,00,000.
2. Received from Kiran	14000
4. Paid into bank	10000
6. Cash sales	15000
8. Paid to Arjun	9000
10. Purchased goods	22000
15. Received from Kiran	6000
18. Paid to M/s Rahim	7000
21. Withdrew cash from Bank	25000
23. Cash sales	30000
23. Purchased goods	17000
30. Paid rent	1500
31. Paid salary	5800

\*\*\*\*\*

You have learned how to prepare simple cash book. In the case of large business organizations, a number of cash transactions are taking place every day. For convenience in dealings they use cheques and drafts. So when there is large number of bank transactions, it is convenient to have a separate amount column for bank transaction in the cash book itself. This helps in getting clear information about the position of the cash balance and bank balance from time to time. As there has two amount columns, such type of cash book is known a double column cash book.

#### **Double Column Cash Book**

A cash book with cash and bank column on either side is called double column cash book.

### Activity 6.5

(Materials Required: Worksheet No. 1)

The difference between simple cash book and double column cash book is that, double column cash book will have additional amount columns to record bank transactions, as both sides. So you are required to design the format of double column cash book in the work sheet provided.

You are familiar with the preparation of single column cashbook. Double column cash book is prepared in the same way as that of single column cash book. All receipts are recorded on the debit side and all payment is recorded on the credit side. When the amount is received or paid in cash it is recorded in cash column and when the amount is received or paid in cheque it is recorded in the bank column.

### Activity 6.6

(Materials Required: Worksheet No. 5)

Record the following transaction in the double column cash book of Mr. Mohan and compute the balance.

2003		Rs.
June	1 Opening balance: Cash in hand	54000
	Cash at bank	25000
	3 Purchased goods	5000
	5 sold goods for cash	8000
	7 Paid to Mr. Sajeev by cheque	2500
	10 Received cheque from Kumar	4000
	13 Deposited into bank	6000
	15 Purchased stationery	1000
	18 Received commission	500
	19 Withdrew cash from bank	3500
	21 Paid rent by cheque	1000
	24 Received cash on sales	7500
	27 Issued cheque to Remesh	4500
	30 Paid into bank	6500
	30 Bank charges	200

\*\*\*\*

What is the journal entry when cash is deposited in to bank?

\*

What is the journal entry when cash is withdrawn from bank for office use?

\*

In these situations the two aspects are 'Bank' and 'cash'. Both these aspects appear in the same cash book itself. Thus double entry of the transaction is completed in the double column cash book it self. Such entry is known as contra entry. At the time of entering contra entries the letter 'C' is written in the ledger folio column on both sides against the respective entries to indicate that the same entry is posted on the opposite side of the same cash book. Contra entries need not be posted to the ledger account.

Suppose Rs. 5,000 is deposited in to bank on 1<sup>st</sup> may and Rs. 2,000 is withdrawn from bank on 5<sup>th</sup> may 2003 to business purpose it can be recorded in the double column cash book as follows.

**Cash Book (Double Column)**

Date	Particulars	R.N	L.F	Cash Rs	Bank Rs	Date	Particulars	R N	L F	Cash Rs	Bank Rs
May 1	Cash		C		5000	May 1	Bank		C	5000	
5	Bank		C	2000		5	Cash		C		2000

**Contra entry**

An entry which appears on both side of the double column cash book is termed as

Contra entry

### **Activity 6.7**

(Materials Required: Worksheet No. 1)

You have learned how to record normal banking transaction in the cash book. Discuss and formulate entries to record the following.

1. Dishonour of cheque
2. Cash withdrawn by proprietor for personal use
3. Bank charges
4. Interest as bank loan
5. Cheque issued to suppliers.
6. Bank Loans
7. Interest as bank Loans
8. Over drafts by bank.

After the discussion record your finding in the worksheet provided.

### **Activity 6.8**

(Materials Required: Worksheet No. 4 & 6)

Record the following transaction in double column cash book of Mr. Nerandran for the month of June 2003. Also post the entries to respective accounts.

1.	Cash balance	25000
	Bank balance	10000
2.	Sold goods for cash	6000
5.	Paid wages by cheque	1500
7.	Received cheque from Sunder	8000
10.	Deposited into bank	7500
13.	Issued cheque to Devan	4500
17.	Withdrawn from bank for office use	2500
20.	Purchased goods	3500
25.	Sold goods	9000
30	Paid rent	1000

\*\*\*\*\*

The business organization is required to make large as well as small payments. It is not practical to issue cheques for small payment like carriage, postage etc. These types of small payments are to be made in cash. For recording these small payments a separate book is usually maintained by large business. For making the small payments and to record them in a cash book, the organization appoints a separate person known as petty cashier.

### **Petty cash book**

The cash book which records small payments is known as petty cash book and the person in charge is known as petty cashier.

The petty casher receives cash from the main cashier and makes small payments. He records the same in his petty cash book. At the end of the week or months he submit the petty cash book to the main cashier who will examine the same and provide necessary cash.

### **Activity 6.9**

(Materials Required: Worksheet No. 1)

Discuss the importance of maintaining petty cash book and record your inferences in the worksheet provided. Also develop a format for petty cash book.

### **Activity 6.10**

(Materials Required: Worksheet No. 7)

On January 2004 a cheque for Rs 200 was handed over to Mr. Robert, a petty cashier to make petty cash expenses for the month. The following expenses were occurred during the month. Record the same in the petty cash book.

1. Postage stamps	Rs 20
4. Carriage	Rs 15
8. Stationery	Rs 14
14. Telephone	Rs 12
20. carriage	Rs 10
23. Cleaning expenses	Rs 15
31. Stationery	Rs 14

### ***Points to Remember***

- ✓ Cash account is an asset account or real account and thus, any increase in cash or bank account is debited to the account
- ✓ Any decrease in cash or bank account is credited to the account.
- ✓ Cash book always shows a debit balance.

### ***Formative Evaluation***

1. What are the steps involved in the preparation of cash book?
2. How to make posting of entries from cash book?

## **MODULE No. 7**

**Area : Origin and Recording of Transactions**

**Competency : To Develop Expertise in the preparation of Purchases Day Book**

### ***Objectives:***

This module will help you to gain expertise in the preparation of Purchases Day Book. On completion of this module you will be able:

- To frame suitable format for preparing Purchases Day Book
- To record entries correctly in the Purchases Day Book
- To post entries from Purchases Day Book to respective accounts

### ***Introduction***

We have seen that, usually business firms maintain a separate book called cash book to record cash and bank transactions. Similarly transactions relating to purchase and sale of goods are also large in number and they take place too frequently. So it is desirable to maintain separate book for purchases and sales of goods. We know that cash purchases and cash sales of goods are recorded in

the cash book. So separate books are required only for recording credit purchases and credit sales of goods.

### **Purchases Day Book**

The purchases day book is required for recording credit purchases of goods and raw materials. This book is also called purchases book or invoice book.

#### **Activity 7.1**

(Materials Required: Worksheet No. 1)

From among the following identify the transactions which are to be recorded in the purchases day book and record the same in the worksheet provided and also give the rationale for your decisions.

1. Started business with cash in Rs 10,000
2. Purchased furniture to Rs 20,000
3. Purchased from Kumar & son Rs 5,000
4. Purchased goods for Rs 6,000
5. Purchased from Gokul Rs 7000

Discuss your answer in your group.

\*\*\*\*

#### **Activity 7.2**

(Materials Required: Worksheet No. 1)

In a purchases day book we have to record all credit purchases of goods. So what are the matters to be recorded in a purchases day books. Record your answer in the worksheet provided.

\*\*\*\*

#### **Activity 7.3**

(Materials Required: Worksheet No. 1)

You know the format of a journal. You also have identified the things to be recorded in the purchases book. So develop a format for purchases day book.

\*\*\*\*

You have developed the format of purchases day book. Now let us learn how to record the entries in the purchases day book. Analyse the following transactions and look how it is recorded in the purchases day book of Mr. Kiran.

2004 June 1 Purchased from Delhi Traders:

100 Meter Silk @ Rs 100 per meter; 200 meters velvet @ Rs 75 per meter. Trade discount allowed 10%.

#### Purchases Day book

Date	Name of Supplier	Invoice No	L. F	Amount
2004 June 1	Delhi Traders: 100 Meter Silk @ Rs 100 = 10000 200 meters velvet @ Rs 75 = <u>15000</u> 25000 Less: Trade discount 10% = 2500			22500

Now you are familiar with recording of transactions in purchases Day book. Posting of entries from purchases day book is made to the accounts of concerned parties. When the purchases are made from suppliers on credit, they become our creditors and hence, posting should be made on the credit side of party's accounts.

#### Activity 7.4

(Materials Required: Worksheet No. 4 & 8)

The following are the transactions of G. Gopu for the month of May 2004. Record them in the Purchases Day Book and also post them into respective accounts.

2004 may 10 : Purchased from Bombay Dying:

100 metres of silk @ Rs 150 per metre

80 metres of velvet @ Rs 100 per Metre

10% trade discount is allowed.

May 5: Purchased from Sobha silks:

50 shirts @ Rs 200 per shirt

40 shirts @ Rs 250 per shirt

Less 5% trade discount.

May 10: Purchased from Anand silks:

100 T shirts @ 80 per T shirts

200 T shirts @ 70 per T shirts

Less 8% trade discount.

### ***Points to Remember***

- ✓ All credit purchases are recorded in the Purchases Day Book.
- ✓ Posting from Purchases Day Book is done to the credit of concerned party's account.
- ✓ Cash purchases are not recorded in the Purchases Day Book, they are recorded in the Cash Book.
- ✓ The total of Purchases Day Book is posted to the debit of Purchases account

### **Formative Evaluation**

3. How to record entries in the Purchases Day Book?
4. How posting is done from Purchases Day Book?

## **MODULE No. 8**

**Area : Origin and Recording of Transactions**

**Competency : To Develop Expertise in the preparation of Purchases Return Book**

### ***Objectives:***

This module will help you to gain expertise in the preparation of Purchases Day Book. On completion of this module you will be able:

- To frame suitable format for preparing Purchases Return Book
- To record entries correctly in the Purchases Return Book
- To post entries from Purchases Return Book to respective accounts

### ***Introduction***

In any business sometimes goods purchased may have to be returned to the suppliers either partly or fully. This is done when they are found to be defective, damaged, inferior quality etc. If this return of goods is large, a separate book called 'Purchases Return Book' should be used for recording these transactions. This book is also called 'Purchases Return Journal' or 'Return outward Journal'. When goods are returned to the supplier, a statement called 'Debit Note' is sent to him.

### **Debit Note**

Debit Note is a statement sent by the buyer to his supplier intimating that his account has been debited with the amount of goods returned to him.

Debit Note contains particulars and value of goods returned. It is prepared in duplicate and the original is sent to the suppliers. The entries in the purchases return book are made on the basis of the duplicate copy of 'Debit Note'.

### **Activity 8.1**

(Materials Required: Worksheet No. 1)

Discuss what are the matters that to be recorded in Purchases Return Book. On the basis of the inferences of your discussion develop a format of Purchase Return Book.

\*\*\*\*

Recording of transactions in the Purchases Return Book is similar to that of Purchases Day Book. Posting from Purchases Returns Books are done to the respective ledger account. Entries from purchase Return Book is made to the debit of respective parties account. Total of the Purchases return book is posted to the credit side of the Purchases Returns Account by writing "Sundries as per Purchases Return Books"

### **Activity 8.2**

(Materials Required: Worksheet No. 4&9)

Record the following transactions in the Purchases Return Book and also post the same into respective accounts.

2004 May 10: Returned to Bombay Dying

10 Shirts of @ Rs 150 per shirt.

20 Sarees @ Rs 400 per Saree

2004 May 20: Return to Kumaran Silks

5 Silk Sarees @ Rs.1000 per each.

***Points to Remember***

- ✓ When goods are returned to suppliers, they are recorded in the Purchases Return Book.
- ✓ Posting from Purchases Return Book are made to the debit of concerned party's account.

***Formative Evaluation***

1. What is Purchases Return Book?
2. How posting is made from Purchases Return Book?

<b>MODULE No. 9</b>
---------------------

**Area : Origin and Recording of Transactions**

**Competency : To Develop Expertise in the preparation of Sales Day Book**

***Objectives:***

This module will help you to gain expertise in the preparation of Sales Day Book. On completion of this module you will be able:

- To frame suitable format for preparing Sales Day Book
- To record entries correctly in the Sales Day Book
- To post entries from Sales Day Book to respective accounts

***Introduction***

You know that Purchase Day Book is used for recording the credit purchases of goods. In the same way the sales day book is used for recording the credit sales of goods. This book is also called 'Sales Journal'.

The format of sales journal is similar to that of Purchases book. The differences are only with regard to the second column. For what purpose the second column is used in purchase day book? In the Purchases book it is used to record the details of the suppliers. But in the Sales Day Book this column is used for writing the names of the customers.

### **Activity 9.1**

(Materials Required: Worksheet No. 1)

Develop format of Sales Day Book.

\*\*\*\*

Now you have developed a format of Sales Day Book. Discuss the same in your group and make necessary modifications. Your teacher will help you.

### **Activity 9.2**

(Materials Required: Worksheet No. 1)

From among the following identify the transactions which are to be recorded in the sales day book and record the same in the worksheet provided and also give the rationale for your decisions.

1. Sold goods for Rs 5000
2. Sold goods to Mr. Ramkumar for rs 4500
3. Sold old news paper for Rs 100
- 3.Sold good to Veenus Traders Rs 8000

\*\*\*\*

### ***Recording transactions in the Sales Day Book***

We know that the credit sales are recorded in the Sales Day Book. Recording of transactions in this book is similar to that of Purchases Day Book. We have to enter the details of the costumers in the particulars column and the amount of sales made in the amount column.

Now, let us record some transactions in the Sales Day Book.

### **Activity 9.3**

(Materials Required: Worksheet No. 10)

Record the following transactions in the Sales Day Book of Mr. Raghu.

- |               |   |
|---------------|---|
| 2004 April, 2 | Sold to Kurian for rs 7000                      |
| April 5       | Sold to Milan traders on account Rs 15000       |
| April 20      | Sold to Ganesh Brothers , Chennnia for Rs 50000 |

\*\*\*\*

### ***Posting from Sales Day Book***

Now you are familiar with recording of transactions in Sale Day book. Each Sales recorded in the Sales Book is posted to the debit of the party's Personal Accounts of the customers by writing "Sales Account" in particulars column. The total of the Sales Book is posted on the credit side of the Sales Account by writing "sundries - as per sales book."

### **Activity 9.3**

(Materials Required: Worksheet No. 4)

Post the entries from the Sales Book prepared in the above activity, to concerned ledger accounts.

\*\*\*\*

#### ***Points to Remember***

- ✓ Sales Day Book records all credit sales of goods.
- ✓ Posting from Sales Day Book are made to the debit of concerned party's account.
- ✓ Cash sales are not recorded in the Sales Day Book; it is entered in the Cash book.

#### ***Formative Evaluation***

1. What is Sales Day Book?
2. How posting is made from Sales Day Book?

## **MODULE No. 10**

**Area : Origin and Recording of Transactions**

**Competency : To Develop Expertise in the preparation of Sales Return Book**

**Objectives:**

This module will help you to gain expertise in the preparation of Sales Day Book. On completion of this module you will be able:

- To frame suitable format for preparing Sales Return Book
- To record entries correctly in the Sales Return Book
- To post entries from Sales Return Book to respective accounts

**Introduction**

When customers return goods to the business, it is normally recorded in a separate book called 'Sales Return Book'. This is also called Sales Returns Journal or Return Journal Book or Inward Return Journal.

When a customer return goods to the business a statement called credit note is issued to him.

### **Credit Note**

Credit Note is a statement sent by the seller to his customer intimating that his account has been credited with the amount of goods returned by him or any other allowances

The format of Sales Return Book is similar to that of Purchases Return Book. Only difference is in respect of credit note, while it is debit note in the case of Purchases Return Book.

### **Activity 10.1**

(Materials Required: Worksheet No. 1)

Develop the format of Sales Return Book

### ***Recording transactions in the Sales Return Book***

Transactions in the Sales Return Book are recorded in the same way as that of in the Purchases Return Book. Let us record some transactions in the Sales Return Book.

### **Activity 10.2**

(Materials Required: Worksheet No. 11)

Record the following transactions in the Sales Return Book of Mr. Arun.

2004 June 2 Goods sold returned by Surya Traders Rs 2000

June 5 Allowances granted to Mermaid traders for damage of goods Rs 2500

\*\*\*\*\*

### ***Posting from Sales Return Book***

Transactions recorded in the Sales Return Book are posted to the credit side of each customers account by writing “Sales Return Account” and then post the total of Sales Return Book to the debit side of the Sales Return Accounts by writing “Sundries – as per the sales return book”.

### **Activity 10.3**

(Materials Required: Worksheet No. 4)

Post the entries from the Sales Return Book prepared in the above activity, to concerned ledger accounts.

### ***Points to Remember***

- ✓ Sales Return Book is used to records return of good by customers.
- ✓ Posting from Sales Return Book are made to the credit of concerned party’s account.
- ✓ Allowances granted for damage of goods etc. to the customers are also recorded in this book.

- ✓ Posting is done to the credit of party's account and debit of Sales Return Account.

**Formative Evaluation**

1. What is Sales Return Book?
2. How posting is made from Sales Return Book?

**MODULE No. 11**

**Area : Trial Balance**

**Competency : To Prepare Trail Balance**

**Objectives:**

This module will help you to gain expertise in the preparation of Trial balance. On completion of this module you will be able to:

- Gain insights into the objectives and purposes of preparing trail balance
- Use appropriate format for preparing trail balance
- Construct trail balance form the account balances.
- Judge the arithmetical accuracy of the books of accounts

**Introduction**

You have already studied how to prepare ledger accounts and balance them. You know that every debit should have a corresponding credit, as per the principles of double entry. So the total debit balances should be equal to the total credit balances. By comparing the total of debit balance and credit balances, the arithmetical accuracy of ledger accounts can be verified. For this purpose a statement called 'Trial Balance' is prepared.

Trial Balance is a statement prepared with the debit and credit balances of ledger accounts to verify the arithmetical accuracy of the book. A trial balance is a list and total of all the debit and credit accounts for an entity for a given period. The trial balance is prepared after all the transactions for the period have been journalized and posted to the General Ledger.

**Trial Balance**

A Trial Balance is a statement of balances of all ledger accounts, prepared at the end of a period, to check the arithmetical accuracy of the books kept under double entry principles.

The Trial Balance checks the equality of debits and credits in the ledger by listing each account along with its ending balance.

<b>Accounts to be placed on debit side</b>	<b>Accounts to be placed on credit side</b>
Assets Expenses Drawings	Liabilities Capital Revenue

### **Activity 11.1**

(Materials Required: Worksheet No.1)

#### ***Why Trial Balance is required?***

Even though the trial Balance is not a part of the double entry, it serves some purposes. The objectives of preparing trial Balance has been given below. You have to discuss the same in your group and identify how it is possible from the preparation of Trial balance. Your teacher will assist you.

1. To verify the arithmetical accuracy of the books of accounts.
2. To find out mistakes and rectify them.
3. To provide a basis for preparing financial statements (Trading, Profit & Loss Account and Balance Sheet)

#### **Errors revealed by Trial Balance**

You know that some errors affect the agreement of Trial Balance. Such errors are described below.

**Errors in calculation:** Any calculation mistake, especially totaling mistake or balancing mistake will be revealed by Trial Balance as both the side will not match.

**Errors of omission of one entry:** If by mistake only one entry is made for a transaction, Trial Balance will not balance.

**Posting to the wrong side of an account:** In case any entry is made on the wrong side of the account, it will be revealed by the Trial Balance. For example Credit sale of Rs1000 was debited to Sales account.

**Posting of wrong amount:** When two different amounts are entered for the same entry, both the sides of the Trial balance will not match. For example, Credit sales of Rs5600 to James. James was debited with Rs5600 but Sales was wrongly credited as Rs6500.

### **Errors not revealed by Trial Balance**

Though Trial Balance is prepared to check the arithmetical accuracy of double entries, there are still some mistakes which cannot be identified by Trial Balance. These are:

**Errors of omission:** These are errors where the transactions are totally omitted. They are neither recorded in the Journal or Ledger and thus do not appear in the Trial Balance.

**Errors of commission:** This means that a wrong amount is entered from the very starting in the Journal or Ledger and thus a Trial Balance based on this amount may not show any mistake at all.

**Errors of principle:** These errors occur when the classification of accounts is wrongly done. For example revenue expenditure may be considered as capital expenditure. Repairs of machinery Rs200 was debited to Machinery account whereas it should have been debited to 'Repairs of machinery account'.

**Complete reversal of entries:** Complete reversal of entries cannot be revealed by Trial Balance. This is when entries have been made to both the sides and thus there is no arithmetical mistake. Good sold to Raman were entered as Sales debited and Raman Credited, whereas, it should have been vice versa.

**Compensating errors:** These errors are those which cancel themselves because the same error is committed on both sides. For example, Purchases were debited by Rs1000 more and at the same time Sales were also credited by Rs1000. This will neutralize the effect of both the entries.

### ***How to Prepare Trial Balance?***

Now you are aware about the purposes served by the Trial balance. Let us discuss how to prepare a Trial balance. You know that the Trial Balance is prepared by summing the balances of all the ledger accounts. The account balances are used because the balance summarises the net effect of all of the debits and credits in an account.

### **Activity 11.2**

(Materials Required: Worksheet No.1)

Generally Trial Balance is prepared in the form of a table. In your group discuss and develop an appropriate format of Trial Balance. Your teacher will help you. In the format there should be columns for writing:

- The name of accounts
- Debit amount and
- Credit amount

Trial Balance is prepared with the ledger account balance. These balances may relate to assets, liabilities, capital, revenue and expenses. The accounts having debit balance are entered in the debit column of the Trial Balance and accounts having credit balance are written in the credit column of the trial balance.

Suppose Mr. Kumar has the following balances as on 31<sup>st</sup> March 2004.

Cash	Rs10000	Bank	Rs25000
Buildings	Rs40000	Purchases	Rs60000
Stock	Rs10000	Sales	Rs75000
Wages	Rs20000	Furniture	Rs16000
Capital	Rs90000	Creditors	Rs16000

The Trial Balance of Mr. Kumar will be as follows.

#### **TRIAL BALANCE AS ON 31-03-2004**

Code No.	Name of Accounts	Debit Amount	Credit Amount
1	Cash	10000	
2	Bank	25000	
3	Buildings	40000	
4	Purchases	60000	
5	Stock	10000	
6	Wages	20000	
7	Furniture	16000	

8	Sales		75000
9	Creditors		16000
10	Capital		90000
	<b>Total</b>	181000	181000

In the above trial balance, the balances of Accounts 1, 2, 3,4,5,6 and 7 are net debits, and the balances of Accounts 8, 9, and 10 are net credits. The totals of the debits and credits should be equal; if they are not, then an error was made somewhere in the accounting process.

### **Activity 11.3**

(Materials Required : Worksheet No.4,,6,8,9 &12)

From the following transactions , prepare subsidiary books, post them into respective accounts and prepare Trial Balance as on 31 march 2004.

Mrs. Lathika started business with Rs 200000 on 2004 March1. Other transactions for the month were:

2. Opened a bank account with Rs 50000
3. Purchased machinery Rs20000
5. Purchased goods from Hari&Co. Rs 55000
8. Sold goods to Kiran Rs 25000
10. Purchased goods Rs 30000
13. Sold goods Rs 70000
15. Rent paid Re 2000
16. Paid salaries Rs 5000
19. Paid insurance Rs 800
21. Withdrew from bank Rs 25000
24. Sold good to jeevan Rs 35000
28. Received from Kiran Rs 15000
30. Paid insurance Rs 1000

#### ***Points to Remember***

- ✓ Trial balance is prepared to check the arithmetical accuracy of books of accounts
- ✓ Some errors are disclosed by Trial balance, while some are not disclosed by it.

#### ***Formative Evaluation***

1. What are the objectives and purposes of preparing Trail Balance?
2. What are the steps involved in the preparation of Trail Balance?

## **MODULE No. 12**

**Area : Financial Statements**

**Competency : To develop insights into the purposes of Financial Statements**

**Objectives:**

This module will help you to develop a deep understanding of the the different types of financial statements usually prepared by business firms and the purposes served by them. On completion of this module you will be able to:

- describe the financial statements usually prepared by business firms
- state the uses of various financial statements

**Introduction**

You know that businesses have two primary objectives. They are:

- Earn a profit
- Remain solvent

Businessmen are usually eager to know the operating result in terms of profit or loss during a particular period and the financial position on a particular period. For this purpose he prepares summary statements of the accounting data at the end of the period.

### **The Financial Statements**

The four financial statements are reports that allow interested parties to evaluate the profitability and solvency of a business. These reports include the following financial statements:

- Balance Sheet
- Income Statement
- Statement of Owner's Equity
- Statement of Cash Flows

These four financial statements are the final product of the accountant's analysis of the transactions of a business. A large amount of effort goes into the preparation of the financial statements. The process begins with bookkeeping, which is just one step in the accounting process. Bookkeeping is the actual recording of the company's transactions, without any analysis of the information. Accountants evaluate and analyze the information, making sense out of the numbers. For the reports to be useful, they must be:

- Understandable
- Timely
- Relevant
- Fair and Objective (free from bias)

### **The Income Statement**

The income statement is the first of the financial documents prepared, and this statement takes business revenue (money in) and expense (money out) and provides a summary of those transactions for a specific period of time. Revenue is generally income from sales. Revenue, however, can also be in the form of rental income, asset sales, or money from investment sales. The expenses, or money spent can cover all sorts of expenditures during the course of operating your business such as labour, utilities, cost of goods, and operating supplies expense. From the income statement we have what is known as “net income” and this carries forward to the statement of owner’s equity. The income statement consists of Trading, Profit and Loss Account.

### **The Statement of Owner’s Equity**

The statement of owner’s equity is purely and simply a summary of changes in owner equity that have transpired during a specific period of time. This period of time is generally a month, a quarter, or a year. The statement of owner equity compares the beginning total, any additions of net income, any subtractions or withdrawals of value from the equity balance, and displays a new balance, known as an ending balance. This ending balance is then transferred to the balance sheet. Before we can finish the balance sheet, however, we need a piece of information from the statement of cash flows. So, let’s take a look at the statement of cash flows.

## **The Statement of Cash Flows**

The statement of cash flows is a financial statement that provides a summary of all the cash receipts and cash payments for a given or specific period of time. Again, this generally occurs by month, quarter, or year. Cash from operating activities (your actual business sales or services), cash from investing activities (purchases or sales of investment items such as stocks or real estate) and cash from financing activities (cash proceeds from owner investment in business, loan proceeds, or mortgage financing). The statement of cash flows, when complete, provides us with a cash balance or cash on hand balance for the balance sheet.

## **Balance Sheet**

The balance sheet is a compilation of assets, liabilities, and equity. Since the statement of cash flows provides the cash balance, and the statement of owner's equity provides a current equity value, we need those financial statements completed prior to the completion of the balance sheet. On the balance sheet the cash balance, supplies, land, inventory, and accounts receivables are listed under assets. The accounts payable, and notes payable are listed under liabilities. The owner or stockholder equity balance is listed under the owner's equity column, and then the liabilities and owner equity is totaled to compare to the asset column. The figures should agree.

The balance sheet provides the compiled picture of the state of a business, but all the other pieces of the financial statements group are necessary in order to put together the balance sheet.

### **Activity 12.1**

(Material Required: Worksheet No. 1)

Discuss the following questions in you group and write your conclusions in the worksheet provided.

1. What are the various financial statements prepared by business firms?
2. What are the purposes of preparing different types of financial statements?

### ***Formative Evaluation***

1. What are the importance and the purposes of preparing financial statements?

**MODULE No. 13**

**Area : Financial Statements**

**Competency : To Prepare Trading Account**

**Objectives:**

This module will help you to gain expertise in the preparation of Trading Account. On completion of this module you will be able:

- The list the items comes in the trading account
- To use appropriate format for preparing trading account
- To record various items in the trading accounts in their proper order
- To compute the gross profit or gross loss from the trading account.
- To make necessary adjustments in the trading account

**Introduction**

You know that the Final Accounts consists of the following.

- Trading Account
- Profit and Loss Account and
- Balance Sheet

### **Trading Account**

Trading Account is a Nominal Account and is prepared for calculating the GROSS PROFIT or GROSS LOSS arising as a result of trading activities of a business.

#### **Trading Account**

*'The Trading Account shows the results of buying and selling of goods. In preparing, this account, the general establishment charges are ignored and only the transactions in goods are included'*

**Importance of Trading Account**

Trading Account is prepared for the following reasons

- ✓ To know the Gross Profit or Gross loss arising due to trading activities of the business.
- ✓ To find out the direct expenses incurred by the business for the goods sold during the year.

- ✓ Find out how much closing stock is left as compared to previous years and thus find out the performance of the business.
- ✓ Gives the trader an idea of the increase/decrease in Gross Profit /Gross Loss and to assess the performance of the business and take corrective measures, if needed.

### **Preparation of Trading Account**

The following items usually appear in a Trading Account

#### **1. Sales turnover**

Both Cash and Credit sales are included. Net Sales is recorded after deducting Sales returns (Return inwards).

#### **2. Opening Stock**

The closing stock of the previous accounting year is taken as the Opening stock for the present year. If there is no Opening Stock then no entry is made. Opening stock is derived by balancing the Stock Account and bringing down its balance to the next period.

#### **3. Purchases**

Purchases include all the Cash and Credit purchases of goods made by the business during the year.

Purchase returns (Return outwards) is deducted from the Purchases to arrive at Net Purchases.

#### **4. Direct Expenses**

All expenses which are incurred in purchasing the goods and bringing them to the trading place are recorded under this category. These include:

- **Wages** e.g. Warehouse worker wages.
- **Carriage Inwards** i.e. the cost of transport of goods to the trading place. The expense is usually borne by the buyer.
- **Duty on purchases**, for example, Import duty or excise duty.

#### **5. Closing Stock**

All the goods which remain unsold at the end of the year are known as 'Closing stock'.

The closing is stock is valued at Cost price or Market price, whichever is lower. The reason for taking the lower value of the two is in accordance with the '**Prudence Principle**'. Normally, 'Closing stock' is given outside the Trial

Balance. This is so because its valuation is made after the accounts have been closed.

**Note:** Sometimes, the 'Closing Stock' may be given inside the Trail Balance. This means that the entry to incorporate the closing stock in the books has already been passed and it has already been deducted from the Purchases Account. In this case, 'Closing Stock' will not be shown in the Trading Account will only appear in the Asset side of Balance Sheet'.

### Cost of goods sold

This means the finding the cost of only those goods which have been sold during the year. It can be calculated as follows:

$$(Net\ Purchases + Opening\ Stock) - Closing\ Stock$$

### Activity 13.1

(Materials Required: Worksheet No. 1)

Identify the various items that appear on the debit and credit side of Trading Account and write them in the worksheet provided.

\*\*\*\*

Now let us prepare a simple Trading Account.

On 31st December 2007, the books of XYZ show the following balances:

Item	Rs
Opening Stock	1000
Purchases	2600
Sales	9000
Return outwards	200
Return inwards	450
Carriage inwards	40
Warehouse worker wages	200

Closing Stock was valued at Rs 400

Using the above information we can prepare a Trading Account as shown below.

Trading Account of XYZ for the year ended 31st December 2004					
Items	Amount		Items	Amount	
Opening stock		1000	Sales	9000	
Purchases	2600		Less Returns inwards	450	
Less Returns	200				8550

outwards					
	2400				
Add Carriage inwards	40				
Worker wages	200				
		2640			
Cost of goods available for sale		3640			
Less Closing stock		400			
Cost of goods sold		3240			
Gross Profit		5310			
		<b>8550</b>			<b>8550</b>

### Activity 13.2

(Materials Required: Worksheet No. 13)

The following details have been taken from the accounts of Kumaran Traders as on 31<sup>st</sup> March, 2004. Prepare a Trading Account and calculate gross profit of the firm.

Sales	Rs 85000
Opening Stock	Rs 5000
Purchases	Rs 30000
Carriage Inward	Rs 2000
Closing Stock	Rs 10000

#### **Points to Remember**

- ✓ Trading Account is prepared to know the trading result of a business i.e. gross profit or gross loss.
- ✓ Only trading activities are considered while preparing Trading Account.

#### **Formative Evaluation**

5. What is the significance of trading Account?
6. What are the items that appear on the debit and credit side of Trading Account?
7. What are the steps involved in the calculation of gross profit or gross loss of a firm?

## **MODULE No. 14**

**Area : Financial Statements**

**Competency : To Prepare Profit and Loss Account**

**Objectives:**

This module will help you to gain expertise in the preparation of Profit and Loss Account. On completion of this module you will be able:

- To differentiate between trading account and profit and loss account
- To list the items come in the profit and loss account
- To use suitable format for preparing profit and loss account
- To record various items in the profit and loss account in the proper order
- To compute the net profit and net loss

- To make necessary adjustment in the profit and loss account

### ***Introduction***

You have learnt to find out the gross profit / gross loss of a business by preparing Trading Account. But a Trading Account will not give information about the operating profit or loss of the business. Operating Profit is the excess of operating revenue over operating expenses. The ultimate profit of a business is Net Profit. It is arrived at after charging all business expenses including non-operating and financial expenses. Net Profit of a business will include non-operating income also. The Net Profit can be calculated with the following Equation

$$\text{Net Profit} = \text{Operating Profit} + \text{Non-operating Income} - \text{Non-operating Expenses}$$

### ***The Purpose of Profit And Loss Account***

The Net Profit of a business is finding out by preparing an account called Profit and Loss Account. The following are the main purposes of preparing a Profit and Loss Account.

- To find out the Net Profit or Net Loss
- Compare the net profit of the business with previous years and to assess the performance of the business.
- Find out the amount of overheads of a business

***‘A Profit and Loss Account is an account into which all gains and losses are collected, in order to ascertain the excess of gains over the losses or vice-versa’.***

**Prof. Carter**

### ***Items found in a Profit and Loss account***

- 1. Any Incomes or gains:** Any income or gains of the business from sources other than sales are recorded on the Credit side of Profit and loss account.
- 2. Gross Profit or Loss:** It is transferred to the P/L account from the Trading Account. Gross Profit is transferred to the Debit side whereas Gross Loss is transferred to the Credit side.
- 3. Office and Administrative expenses:** Example includes salaries, office rent, lighting, stationery etc.

**4. Selling and Distribution expenses:** Include advertising expense, commission, carriage outwards, bad-debts etc.

**5. Miscellaneous expenses:** Such as, interest on loan, interest on capital, depreciation etc.

The Profit and Loss account is prepared by referring the account balances given in the Trial Balance. Usually the Profit and Loss Account is prepared as a continuation of the Trading Account and hence they together known as Trading and Profit & Loss Account. The Profit and Loss Account begins with gross profit (or gross loss) and will arrive at net profit (or net loss). Now let us prepare a Profit and Loss Account along with Trading Account.

### **Activity - 14.1**

(Material Required: Worksheet No 13)

From the following Trail Balance of Mr. Joseph as on 31<sup>st</sup> March 2004, prepare Trading and Profit and Loss Account.

#### **Trail Balance of Mr. Joseph as on 31<sup>st</sup> March 2004**

Name of Account	Debit Amount	Credit Amount
Stock on 01-04-03	5000	
Purchases	150000	
Purchases Returns		5000
Sales		255000
Sales Return	9000	
Direct wages	2000	
Freight	1000	
Printing and Stationery	7000	
Salary	9000	
Repairs	500	
Furniture	20000	
Buildings	80000	
Creditors		15000
Debtors	18500	
<b>Total</b>	<b>283500</b>	<b>283500</b>

\* Closing stock is valued at Rs 22000

**Points to Remember:**

- ✓ **Operating Profit:** It is the excess of operating revenue over operating expenses.  $Operating\ Profit = Gross\ Profit - Operating\ Expenses$
- ✓ **Operating Expenses:** these are those expenses which affect the normal course of business operations. These expenses are meant for administration, selling and distribution activities.
- ✓ **Operating Income:** Income accruing to a business from its normal course of action.

### **Formative Evaluation**

1. What is the purpose of preparing Profit and Loss account?
2. What is the procedure for arriving at Net Profit or Net Loss of a firm?

## **MODULE No. 15**

**Area : Financial Statements**

**Competency : To Prepare Balance Sheet**

### **Objectives:**

This module will help you to gain expertise in the preparation of Balance Sheet. On completion of this module you will be able:

- To describe the objectives of preparing balance sheet
- To list the items come in the balance sheet
- To use appropriate format for preparing balance sheet.
- To record various items in the balance sheet in their proper order
- To find the agreement of total assets with total liabilities.
- To differentiate between balance sheet and trial balance

### **Introduction:**

Balance Sheet is a statement which shows the financial position of the business on a particular day. It is a list of the assets, liabilities, and owner's equity as of a specific point in time, or period of time. The balance sheet is most often generated at the end of the month, quarter, and year.

#### **Balance Sheet**

*“The Balance Sheet is a statement at a particular date showing on one side the trader's property and possessions and on the other hand the liabilities”.*

A. Palmer

Thus we can say that

- Balance sheet is a statement not an account.
- It is prepared to show the financial position of the business.
- It records all the assets and liabilities of the business.
- It shows the financial position on a particular day not for a period of time.

### ***Purposes of Balance Sheet***

A Balance Sheet serves the following purposes:

- ✓ The true financial position of the business can be ascertained at a particular point of time.
- ✓ Reveals the amount of assets owned by the business for example machinery, cash, and debtors and so on.
- ✓ Show the liabilities of the business such as total creditors, share capital etc.
- ✓ To adjudge whether the firm is solvent or not.
- ✓ Opening entries for the next financial year are based on the Balance Sheet of the previous year.

### ***Items appearing on a Balance Sheet***

#### **1. Assets**

Assets of a business are what it owns. They can be classified as:

**Fixed assets:** All those assets which are owned by the business and last for more than an accounting year. Examples include Land, building, machinery, vehicle, furniture and fixtures and the like.

**Current assets:** It includes all those assets which either in the form of cash or can be easily converted into cash within one accounting period. Current Assets include Cash, Debtors and Stock.

## 2. Liabilities

Liabilities represent what the business owes to outside persons other than owners. These liabilities are classified on basis of time period of repayment.

**Long term liabilities:** These are liabilities which the business owes for more than one accounting period, e.g. long term bank loans, debentures etc.

**Current liabilities:** These are short term debts of the business that are to be repaid within one accounting period, e.g. creditors and bank overdraft.

## 3. Owner's Equity

Owner's equity represents what the business owes its owner. It is equal to total assets minus total liabilities.

### **Important points regarding Balance Sheet**

- The Balance Sheet is not an account but a statement.
- It does not have debit or credit side but has two sections i.e. assets and liabilities.
- The heading of Balance Sheet is 'as on a particular date'. Thus a Balance Sheet may have different figure on different dates.
- The balances shown in the Balance Sheet act as Opening Balances for the next accounting period.
- Balance Sheet is based on the accounting equation

$$\text{Assets} = \text{Owner's Equity} + \text{Liabilities}$$

### **Activity 15.1**

(Materials Required: Worksheet No. 1)

You know that a Balance Sheet presents the assets and liabilities of the business as on a particular date. Design a format of Balance Sheet.

### **Activity 15.2**

(Materials Required: Worksheet No. 14)

Based on the information given in the activity 14.1 (page No 65) prepare a Balance Sheet as on 31<sup>st</sup> March 2004.

### ***Points to Remember***

- ✓ Balance Sheet is a statement which shows the financial position of the business on a particular day.
- ✓ It records all the assets and liabilities of the business.

***Formative Evaluation***

1. What is the purpose of preparing Balance Sheet?
2. How Balance Sheet differ from Trial Balance?

WORKSHEET No. 1

Name :	Module No :
Class :	Activity No :
Class No :	Date :
Teacher's Remarks	

Name	:	Module No	:
Class	:	Activity No	:
Class No	:	Date	:

**Journal**

Date	Particulars	L.F	Debit Amount	Credit Amount

Teacher's Remarks
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**WORKSHEET No. 3**  
**WORKSHEET No. 4**

Name	:	Module No	:
Class	:	Activity No	:
Class No	:	Date	:

Dr. ....Account Cr.

Date	Particulars	Amount	Date	Particulars	Amount

Dr. ....Account Cr.

Date	Particulars	Amount	Date	Particulars	Amount

Dr. ....Account Cr.

Date	Particulars	Amount	Date	Particulars	Amount

**Teacher's Remarks**

### WORKSHEET No. 5

Name :	Module No :
Class :	Activity No :
Class No :	Date :

Dr.					Single Column Cash Book					Cr.		
Date	Particulars	R. No	L.F	Amount	Date	Particulars	V. No	L.F	Amount			

Teacher's Remarks

### WORKSHEET No. 2

Name :	Module No :
--------	-------------

Class : Activity No :  
 Class No : Date :

Equation	Assets							Liabilities + Capital	
Transaction	Cash	Bank	Debtors	Stock	Furniture	Machinery	Land&Building	Creditors	Capital
1. Started business									
2. Purchased Machinery									
<i>New Equation</i>									
3. Deposited into Bank									
<i>New Equation</i>									
4. Purchased from Kumar									
<i>New Equation</i>									
5.									
<i>New Equation</i>									
6.									
<i>New Equation</i>									
7.									
<i>New Equation</i>									
8.									
<i>New Equation</i>									
9.									
<i>New Equation</i>									
10.									
<i>New Equation</i>									

**WORKSHEET No. 6**

Name : Module No :  
 Class : Activity No :

Class No : \_\_\_\_\_ Date : \_\_\_\_\_

Dr. **Cash Book with cash and Bank Columns** Cr.

Date	Particulars	R. No	L.F	Cash	Bank	Date	Particulars	V. No	L.F	Cash	Bank

Teacher's Remarks



WORKSHEET No. 11

Name	:	Module No	:
Class	:	Activity No	:
Class No	:	Date	:

**Sales Returns** book

Date	Particulars	Credit Note No	L.F	Amount

Teacher's Remarks
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**Worksheet No: 12**

Name	:	Module No	:
------	---	-----------	---

Class	:	Activity No	:
Class No	:	Date	:

TRIAL BALANCE AS ON

Code No.	Name of Accounts	Debit Amount	Credit Amount
	<b>Total</b>		

Teacher's Remarks
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WORKSHEET No. 13

Name	:	Module No	:
Class	:	Activity No	:
Class No	:	Date	:

**Trading Profit and Loss Account as on**

<b>Dr.</b>		<b>Cr</b>	
Particulars	Amount	Particulars	Amount

Teacher's Remarks

WORKSHEET No. 14

Name :	Module No :
Class :	Activity No :
Class No :	Date :

**Balance Sheet as on**

Liabilities	Amount	Assets	Amount

--	--	--	--

Teacher's Remarks

## PRE-REQUISITE TEST IN ACCOUNTANCY

**Instructions:** There are four alternative answers followed by each question. Choose the best alternative and draw a cross mark (X) in the respective columns in the answer sheet provided.

**Model Question:** Who was the first Prime Minister of India?

- a] Dr. Rajendra Prasad      b] Jawaharlal Nehru  
c] Dr. B.R. Ambedkar      d] Mahathma Gandhi

A	B	C	D
	X		

1. What do you mean by business transaction?
  - a] Business dealings
  - b] Running of business
  - c] Systematic recording
  - d] Classification
2. Which one of the following is an example of asset?
  - a] Capital
  - b] Salary
  - c] Buildings
  - d] Commission
3. Cash at bank is an example of
  - a] Fixed asset
  - b] Current asset
  - c] Long-term liabilities
  - d] Short term liabilities
4. Capital means
  - a] The amount invested by the outsiders in the business
  - b] The amount invested by the owner in the business
  - c] The value of total assets of the business
  - d] The value of total liabilities of the business
5. The amount spend for earning revenue is called
  - a] Income
  - b] Expenses
  - c] Gain
  - d] Wages
6. Purchase refers to
  - a] Goods bought for use in the business
  - b] Goods bought for consumption
  - c] Goods bought for resale
  - d] Goods sold by business firm
7. Which of the following is an example of credit purchase?
  - a] Bought goods for Rs 10000
  - b] Purchased furniture from Alankar Furnitures
  - c] Bought goods from Rao & Co

- d] Bought goods for personal use from Rao & Co
8. Sales refer to:
- a] The revenue earned by a business
  - b] The value of goods sold by a business
  - c] The value of goods consumed by a business
  - d] The value of goods produced by a business
9. Which of the following is an example of credit sale?
- a] Sold old furniture for Rs 10000
  - b] Sold own land for Rs 200000
  - c] Sold goods for Rs 5000
  - d] Sold to Rao & Co. goods worth Rs 4000
10. Stock or inventory refers to
- a] Total value of purchase made by a business
  - b] Amount of goods unsold on a particular date
  - c] Value of goods used for production
  - d] Total value of finished products
11. The person who owes money to the business is known as
- a] Owner
  - b] Creditor
  - c] Debtor
  - d] Borrower
12. The person from whom the purchase is made is known as
- a] Purchaser
  - b] Creditor
  - c] Debtor
  - d] Owner
13. The business affairs and the private affairs of the proprietor will not be mixed up as per
- a] Going concern concept
  - b] Accounting entity concept
  - c] Money measurement concept
  - d] Accounting period concept
14. According to going concern concept it is assumed that the business has
- a] Very short life
  - b] Indefinite life
  - c] Uncertain life
  - d] No life
15. Revenue realisation principle implies that the accounting should be done
- a] At the time of revenue is incurred or earned
  - b] On the actual receipt or payment
  - c] Only when the accounts are settled
  - d] None of the above

16. A machinery was purchased for Rs10000 and Rs1000 spend for its repair. The market value of the machinery was Rs15000. The same machine can be imported for Rs 8000. The cost of machinery that should be recorded in the books of account is

- a] Rs 10000
- b] Rs 11000
- c] Rs 15000
- d] Rs 8000

17. According to Full disclosure principle, accounting statements

- a] Need not contain details even if they are important to the users
- b] Should contain all information expected by the users
- c] Should contain details required by law
- d] None of the above

18. Dual aspect principle implies that each transaction has

- a] One debit aspect and one credit aspect
- b] One receiving aspect and one giving aspect
- c] Two aspects
- d] All of the above

19. Treatment of capital as a liability is based on

- a] Going concern concept
- b] Matching principle
- c] Accounting entity concept
- d] Materiality principle

20. Sam started business with Rs 50000. The value of the asset of the business will be:

- a] Zero
- b] Rs 50000
- c] Can not calculate
- d] Rs 100000

21. Liability is equal to

- a] Assets – Capital
- b] Assets + Capital
- c] Assets X Capital
- d] Assets/ Capital

22. Which of the following statement is true

- a] All transactions are recorded in the same account
- b] Only debit aspects are recorded in an account
- c] Only credit aspects are recorded in an account
- d] Only similar items are recorded in an account

23. Accounts of assets are termed as

- a] Nominal Account
- b] Personal Account
- c] Real Account
- d] Expenditure Account

24. Which one of the following is a personal account?



**DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT****PREREQUISITE TEST IN ACCOUNTANCY****RESPONSE SHEET**

Name :

Class No :

School :

Item No.	A	B	C	D	Item No.	A	B	C	D
1					16				
2					17				
3					18				
4					19				
5					20				
6					21				
7					22				
8					23				
9					24				
10					25				
11					26				
12					27				
13					28				
14					29				
15					30				

**Total Correct Responses**

**DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT**

**ACHIEVEMENT TEST IN ACCOUNTANCY**

Standard: XI

Time : 2 hours

**Instructions:**

The questions given in this test are based on the units Origin and Recording of transactions, Trial Balance, and Financial Statements. There are two sections in the test. Section A contains 32 objective type questions. There are four alternative answers to question No 1 to 27. Choose the best alternative and draw a cross mark (X) in the respective columns in the answer sheet provided. Each question carries **one** mark. You are required to write the answer to the question No. 28 to 32 in the space provided in the response sheet and it carry 2 marks each. Use separate sheets provided for calculations. Each question carries **one** mark.

Section B contains 5 questions which require detailed answer. Separate sheets will be provided for writing answers to these questions.



15. A 'contra entry' is recorded in
- a) General Journal
  - b) Journal and Ledger
  - c) Cash book
  - d) Cash Account
16. The transaction credit sales to Ramu Rs 8000 record
- a) In the debit side of the cash book
  - b) In the credit side of the cash book
  - c) Both in the debit and credit side of the cash book
  - d) Not recorded in the cash book
17. Which of the following book is used for recording small payments?
- a) Double Column Cash Book
  - b) Single Column Cash Book
  - c) Petty cash book
  - d) Cash Book with Bank Column
18. The closing balance of cash book is posted to:
- a) The debit side of cash account in the ledger
  - b) The credit side of cash account in the ledger
  - c) The Balance sheet
  - d) No posting is required
19. A method of checking accuracy of accounts
- a) Auditing
  - b) Trail balance
  - c) Posting
  - d) Carry forward
20. The financial statement that reports the revenues and expenses for a period of time such as a year or a month is
- a) The balance sheet
  - b) The Trading account
  - c) The profit & Loss Account
  - d) The Statement of Cash Flows
21. Indicate which of the following belongs to an income statement and normally carries credit balance
- a) Bank Loan
  - b) Furniture
  - c) Sales
  - d) Purchases
22. Which one of the following is not a financial statement?

- a) Trial Balance
- b) Trading Account
- c) Profit and Loss Account
- d) Balance sheet

23. In which of the following financial statements the item 'Closing stock' is shown

- a) Trading Account only
  - b) Profit and Loss Account only
  - c) Balance Sheet and Profit and Loss Account
  - d) Balance Sheet and Trading Account
24. What are the items required to calculate Net Profit or Net Loss?
- a) Gross Profit and Non-operating income
  - b) Gross Profit and Non-operating expenses
  - c) Gross Profit, Non-operating income, Non-operating expenses
  - d) Gross Profit and capital
25. The major purpose of preparing a Balance Sheet is
- a) To ascertain the operating income of the business
  - b) To ascertain the financial position of a business
  - c) To ascertain the liquidity position of a business
  - d) To calculate the tax payable
26. The financial statement that reports the assets, liabilities and owner's equity at a specified date is
- a) The balance sheet
  - b) The Trading account
  - c) The profit & Loss Account
  - d) The Statement of Cash Flows
27. Indicate which of the following item belongs to the Balance sheet and normally carries a debit balance
- a) Bank overdraft
  - b) Building
  - c) Salaries
  - d) Purchases

Answer the questions 28 to 32 on the basis of the following information of P.K. Traders for the year ending 31st December 2004. During the year the owner has withdrawn Rs 5000 for his personal use.

Capital Rs 100000,	Stock on 01-01-2004, Rs12000
Stock on 31- 12-2004, Rs20000	Purchases Rs 60000
Purchases Return Rs 2000	Sales Rs 80000
Sales Return Rs 2000	Debtors Rs 24000
Creditors Rs 11000.	Furniture Rs 86000
Cash Rs 4000	Salary Rs 2000
Office Expenses Rs 1000	Wages Rs 4000

28. What is the Gross Profit/ Gross Loss of the business?
29. What is the Net Profit / Net Loss of the Business?
30. What is the value of Total Assets of the firm?
31. What is the amount of cost of goods sold for the year 2004?
32. What is the net capital at the end of the year?

### **Section B**

33. Identify the debit and credit aspect of the following transaction

1. purchases for Rs 15000 from Gokul
2. Salary paid by cheque Rs 25000
3. Furniture purchased Rs 50000

**(6 Marks)**

34. Write journal entry for the following transactions

1. Paid salaries Rs 1000
2. Withdrawn for personal use Rs 5000

**(6 Marks)**

35. Find the closing balance of cash account from the following details

Opening balance Rs 10000,	Deposited into bank Rs 2000,
Purchases Rs 7000,	Sales Rs 11000,
Used for personal purpose Rs 3000.	

**(8 Marks)**

46. Record the following transactions of Ganesh brothers for the month of March 2004 in the appropriate day books and also post the entries into accounts.

1. Purchased from Govind & Co. Rs 45000
2. Purchased goods for Rs 70000

3. Sold goods for Rs 80000
4. Sold to Murukan Rs 60000
5. Returned to Govind & Co. Rs 2000
6. Returned by Murukan Rs 70000
- 7 Cash paid to Govind & Co. Rs 15000
8. Cash received from Murukan Rs 30000
9. Purchased from Leela & Co., Rs 17000
10. Sold to Mamatha & Co for Rs 28000

**(21 Marks)**

47. From the following particulars of Ganga & Co, prepare Trial balance, Trading Profit and Loss Account and Balance sheet as on 31 march 2004.

Opening stock 1.4.2003 Rs 55000,	Purchases Rs 75000,
Sales Rs 1200000,	Purchases return Rs 5000
Sales Return Rs 4000,	Drawing Account Rs 14000,
Land & Building Rs 48000,	Furniture Rs 15000
Debtors Rs 9000,	Ceditors Rs 7000,
Cash in hand Rs 22000,	Investment Rs 40000,
Interest received Rs 2000,	Commission received Rs 4500,
Wages Rs 8000,	Salary psid Rs 6000
Stock at the end Rs 2000,	Capital Account Rs (?) <b>(25 Marks)</b>

DEPARTMENT OF EDUCATION  
UNIVERSITY OF CALICUT

**ACHIEVEMENT TEST IN ACCOUNTANCY**

**Response Sheet**  
(For section A)

Name :

Class No : Boy/Girl

School :

Item No.	A	B	C	D	Item No.	A	B	C	D
1					17				
2					18				
3					19				
4					20				
5					21				
6					22				
7					23				
8					24				
9					25				
10					26				
11					27				
12					28				
13					29				
14					30				
15					31				
16					32				

**Scores**

Category	Section A	Section B	Total
Cognition Scores			
Performance Scores			
Total			

# THE ACCOUNTANCY ATTITUDE SCALE

Santhosh Areekkuzhiyil & Dr. P. Kelu  
Department of Education, University of Calicut

## Section A

Each of the statements below expresses a feeling toward Accountancy. Please read each statement carefully and rate them on the extent to which you agree. Indicate your choice by placing a [✓] mark in the appropriate column. Please do not omit any statement. Your responses will be used strictly for research purposes and will be kept confidential.

SI No.	Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1	Accountancy is very interesting to me					
2	I don't like Accountancy, and it scares me to have to take it					
3	I am always under a terrible strain in a accountancy class					
4	Accountancy is fascinating and fun					
5	Accountancy makes me feel secure, and is stimulating					
6	Accountancy makes me feel uncomfortable and irritable,					
7	In general, I have a good feeling toward accountancy					
8	When I hear the word "accountancy," I have a feeling of dislike					
9	I approach accountancy with a feeling of hesitation					
10	I really like accountancy					
11	I have always enjoyed studying accountancy					
12	It makes me nervous to even think doing accountancy problem					
13	I feel at ease in accountancy and like it very much					
14	I feel a positive reaction to Accountancy; it's enjoyable					

## Section B

On each of the following scale, you can rate your feelings toward accountancy as an A, B, C, D, or E. There are no correct answers. Just rate your feelings toward accountancy on these scales as best you can. Make your choice by placing a [√] mark in the appropriate column.

**Accountancy is:**

15	Good	A	B	C	D	E	Bad
16	Clean	A	B	C	D	E	Dirty
17	Valuable	A	B	C	D	E	Worthless
18	Pleasant	A	B	C	D	E	Unpleasant
19	Nice	A	B	C	D	E	Awful
20	Fair	A	B	C	D	E	Unfair

Name :

Boy/ Girl :

Class :

Class No :

School :

**Total Score**