1.1 The Problem and Its Background

Communication revolution has possibly revolutionised thought, feeling and behaviour by allowing any man, woman or child anywhere in the world to exchange visual and audio experiences with any man, woman or child in any other place in the world. Communication means not only giving information but also bringing change. Effective communication is sharing of ideas, knowledge, skills and attitudes till they become in the dominion of both. It is observed that instruction in schools is being done on traditional lines, mainly through words. Words are very important as a medium of communication but words alone do not bring our proper images in the mind of the students. Their background experience is confined and hence education imparted through words is not understood by them.

For past century, the printed and written words were the only medium to reach millions of unreachable students. But the advent of digital convergent media like telecommunication, radio transistor, television and then the internet made the whole process easier, faster and easy access to information had also encouraged interactivity and interconnectivity. It has become possible to bring education out of past and provide better quality education to the masses and individual at a minimum cost.

In formal educational setting, where teaching is simply a function of passing of knowledge, the main aim is to transmit the message in a form which facilitates the student to apprehend it, understand it and share it. Audio visual aids can contribute greatly to a communication process of this nature, by making the subject matter more easily accessible and by increasing the retention factor. Therefore computer and internet as an instructional medium can play a vital role in accomplishing the goals of

effective and systematic teaching. Educational media has thus moved away from syllabus-oriented approaches. It gives importance to direct teaching and aim at reduction of load in the classroom. Besides it would be used to improve the quality of educational system through training of man power.

National Curriculum Framework, 2005 asserts, *"If ET (Educational Technology) is to become a means of enhancing curricular reform, it must treat the majority of teachers and children not merely as consumers but as active producers. There must be widespread consultation regarding use of ET during development and implementation, ET facilities need to be used at all levels of schools- cluster and block resource centres, district, state and national level institutions- in order to provide hands-on experience in using ET. Such experience provided to children, teachers and teacher educators, could include something as simple as the audience recording of an interview with a village elder, to making a video film or a video game. Providing children more direct access to multimedia development and Information Communication Technology (ICT), and allowing them to mix and make their own productions and to present their own experiences, could provide them with new opportunities to explore their own creative imagination."* This advocates further efforts from all concerned to enable the teachers in developing multimedia educational content and dispensing these to the end users.

1.2 Meaning of Education

"Education is the basic tool for the development of consciousness and reconstitution of society." Mahatma Gandhi

Education could be seen as wings for the progress of the human being. It helps an individual to acquire intellectual, physical, spiritual and emotional growth; it helps an

individual to live a happier life. For people without education, living comfortably seems difficult, especially in the modern world where special skills are often needed to work. Besides, education is the real wealth as true education brings advancement in the individual.

Education is the manifestation of the perfection of inherent qualities already inherent in man. Literally the term 'Education' means 'to draw out.' It refers to the development of individuals' inborn talents and capacities. This might proceed by itself without interference by others. It is consistent with individual's life. The change of human consciousness gives the process of education its unique character and makes teaching and learning an ever changing process as thoughts and feelings are built and rebuilt.

Education not only creates a better human being but also contributes to bring about change in the society. Certain tools are required to get the desired need and they are knowledge, science and arts. These tools empower the people who sincerely want to see a more just world. Working to improve the society through the tools that education provides, help to develop capacities and bring peace and stability.

1.2.1 Education and Child

With the growth of human culture and civilisation, education has also become a well planned and controlled activity. The young members of the society are treated in a distinctive manner by the wise, elderly members so as to learn and attain some knowledge, skills, values, attitudes and modes of behaviour liked and praised by the rest of the people. This is done over an extended period of time steadily and in a well-ordered way, sometimes in specific campuses and sometimes in their community life.

To fulfil this continuous and valued urge, the process of education has become more and more formalised.

Education systems are made to provide education and training, in most cases for children and the young. A **primary** or elementary education consists of the first years of formal, organised education. **Secondary** education consists of the second years of formal education that occur during the adolescence. It is characterised by shifting from the typically compulsory, comprehensive primary education for minors to the optional, selective tertiary, **"post secondary"** or **"higher"** education, (e.g.,) university, vocational (school) for adults. Secondary education occurs mainly during the teenage years.

1.3 School

Schools are established, supported and operated by society not as a form of beneficence but as an investment in society to ensure its progressive improvement along the lines of its own valued ideals and principles.

According to the **Secondary Education Commission** *'the schools no doubt, is a miniature society within the society whose success, achievement and existence will depend upon the continuous and healthy interaction of the society.'* Schools are supposed to provide such type of knowledge and impart expertise in skills and attitudes building which should develop high values in children.

Schools are expected to contribute to the personal development and social expertise of their students, but current educational direction appears to put more importance on academic achievement rather than on social and emotional literacy. Teachers are either using their least teaching potential or they are feeling burnt out. In both the conditions

the desirable expectations from education are not achieved. Many classrooms depend solely on formally acquired knowledge, with learners competing for grades and reinforcement. **Maslow (1971)** believed that most important concern of the school should be to help students to become good persons. This is possible only if schools organise activities that are deliberate, purposeful and meaningful. There is a shift from focussing on teaching to focussing on learning and from teacher responsibility to learner responsibility.

1.4 Teacher

Teachers belong to a profession which involves working with students. Thus, they belong to the group of those who do *'people work'* of some kind. **The Dictionary of Education (Good, 1973)** defines a teacher as '*a person employed in an official capacity for the purpose of guiding and directing the learning experiences of pupils/students in an educational institution whether public or private*.'

Constant explosion of knowledge in the nineteenth and twentieth centuries, each science giving birth to a dozen others, everyone of them claiming to be better than the rest, along with the huge strides of communication technology, has led to a complete restoration of educational system, which itself now aspires to be more and more rationalised. The courses and curricula are graded and organised to facilitate the attainment of their content or subject matter by the learners with the help and guidance of the teacher in charge.

Teachers play a vital role in today's society. They play an important part in the process of its forming as they are the front line of instruction. The government may make the standards and suggest ways of assessment, and the administrators may direct the

teachers in methods and techniques, but it is the teacher who teaches. It can, therefore, be argued that teachers are responsible for the society.

There are all type of teachers some are better than others. The way students act, depends on the teacher's attitude. A teacher carries a huge responsibility in the classroom. Everything the teacher says has an influence on the students. If something goes wrong the only responsibility are of the teachers even if it was not their fault. The teacher must create a warm and protective environment but at the same time he should be professional. Students self esteem could be raised up because it could create ambitions in their minds for future academic success. All teachers are the key to providing a good environment for the students.

1.4.1 Secondary School Teachers

Secondary level education of adolescent students is very important as the learning and culture of high school stays with students throughout their years and the actions of the society in those initial years leave lifelong marks.

Secondary school students often have much to lose their path from learning. These budding adults are making every effort to develop their self identity and understand who they are apart from their friends. This quest to define them can be an intense distraction that causes them to continually lose focus on their studies. While nothing can dispense this problem, teachers can reduce its impact on educational performance by allowing students to complete reflective activities, giving them the opportunity to search for self identity and learn synchronously. The educational media can help students in self learning and learning according to their own pace.

It is the responsibility of secondary school teachers to impart not only the necessary academic lessons but also to help these students make decisions about their future. *"Of all the different factors which influence the quality of education and its contribution to national development, the quality, competence and character of teachers are undoubtedly the most significant. Nothing is more important than securing a sufficient supply of high quality recruits to the teaching profession, providing them with the best possible preparation and creating satisfactory conditions of work in which they can be fully effective."* **(Report of the Education Commission, 1964-66)**

The Secondary Education Commission (1953) defined that, *"we are however, convinced that most important factor in the contemplated educational reconstruction is the teacher- his quality, his educational qualifications, his professional training and the place he occupies in the school as well as in the community. The reputation of a school and its influence on the life of community invariably depend on the kind of teachers working in it."*

Thus the role of a teacher in society and also in the making of future generation is very critical. Only a satisfied, happy, contented and committed teacher can perform this task competently and effectively. It is the need of the hour that schools or organisations must have committed teachers, as only dedicated teachers shall be able to contribute for the development of future generations of society.

1.5 Attitude

Attitudes have been defined as ideas with emotional content, important beliefs, prejudices, biases, pre-disposition, and appreciation and as state of readiness or set. Attitude is an inclination to react in a certain way towards a particular situation

(stimuli) or a designated class of stimuli. It denotes the mental direction of an individual.

An attitude is best defined as a lasting system of the cognitive component, the feeling component, all of which centre round an object, person, event etc. the cognitive component relates to belief related to the object of attitude and the action tendency component relates to the action or behavioural readiness associated with the object of attitude. This shows that an attitude has a well defined object of association. The degree of a person's attitude may vary from favourable to neutral to unfavourable.

In the literature of psychology, the terms 'affect' and 'feelings' are used interchangeably. An individual who has associated positive affect or feeling with some psychological object is said to like that object or to have a favourable attitude toward the object. An individual who has associated negative affect with the same psychological object would be said to dislike that object or to have an unfavourable attitude towards the object.

1.5.1 Definitions of Attitude

Attitudes have been defined in a number of ways. According to **Niger (1973)** attitude is one of the iniquitous terms used in social sciences. The widespread usage has deviated from operational clarity of attitude and rendered it a 'pot pourri' term with no generally accepted definition. Each individual uses the term according to his own purposes. To have a working definition of the term for present study, the definitions as given by some of the psychologists were examined and then the working definition of the term attitude was selected for the present study.

The simplest definition is that, it is a feeling for or against something **(Remmers et.al, 1960).**

Thurstone (1929) had defined attitude as the degree of positive or negative effect associated with some psychological object. By a psychological object, he means any symbol, phrase, slogan, person, institution, ideal or idea toward which people can differ with respect to positive or negative affect. (Thurstone, 1946)

Thurstone & Chave (1929) had defined Attitude as the degree of positive or negative effect associated with some psychological object.

According to **Allport (1937)**, an attitude is a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.

According to **Remmers, Rummel and Gage (1943)**, attitude is an emotional tendency, organised through experience to react positively or negatively towards a psychological object.

According to **Katz and Stottard (1956)**, attitude is a tendency or disposition to evaluate an object or the symbol of that object in a certain way.

According to **Britt (1958),** attitude is a mental set of response.

Fishbein (1967) defines attitude as a mental disposition of the human individual to act for or against a definite object.

According to **Freeman (1971)**, an attitude is a dispositional readiness to respond to certain situations, persons or objects in a consistent manner which has been learnt and has become one's typical mode of response.

According to **Bogardus,** "attitude is a tendency to act towards or against some environmental factors which become thereby a positive or negative value."

Cantrill defined attitude as "a more or less permanently enduring state of readiness of mental organisation which predisposes an individual to react in a characteristic way to any object or situation with which it is related."

K. Young states that, "an attitude is essentially a form of anticipatory response, a beginning of action which is not necessary completed. This readiness to react more over implies some kind of stimulating situations either specific or general."

The above definitions show that an attitude is a preparation or readiness for response. It is inceptive rather than apparent and accomplished. It is not behaviour, but the pre-condition of behaviour.

1.5.2 Nature of Attitude

On the basis of the various definitions, the following nature of an attitude can be drawn.

- An attitude is a mental constitution.
- An attitude is always guided towards an object.
- An attitude may or may not awaken an individual into activity.
- Attitude to an object can be for or against i.e., favourable or unfavourable.
- An attitude is dynamic.

Thus, attitude is a mental state of an individual, which has a driving influence upon the individual's response to all objects and situations with which it is associated.

1.5.3 Characteristics of Attitude

Favourableness: - Favourableness is the degree to which a person is for or against a psychological object. This dimension determines the path of attitude. A person may have positive or negative attitude. He may like or dislike an object. He may approve or disapprove certain practices.

Intensity: - Intensity refers to the strength of the feeling. How strongly a person feels about something, expose the strength of his feeling. For example Reeta disagree with coeducation system while Seeta strongly disagrees with it. It can be ascertained that Seeta's feeling are stronger against coeducation system. Moreover two people may have attitudes of equal intensity but their direction may differ. Mohan strongly supports reservation policy while Rohan is strongly against it. Intensity is equal but in opposite direction. The more favourable or unfavourable an attitude, the more intense it is. However, people who are neutral in their feelings have the least intense attitudes.

Salience: - Salience means how freely or impulsively an individual expresses his attitude. It is the readiness or promptness with which the individual declares to his feelings. A person may express his attitude freely towards caste system or rising prices, but may not express his attitude about religion. Salience is affected by cultural endurance.

Attitudes are acquired: - Attitudes are not inborn or innate. They are not inherited by the individual but are acquired by him during the growth process. At the time of birth

the child does not inherit any preference for food, but as he grows he develops positive and negative attitudes towards certain types of food.

Attitudes are more or less permanent: - Attitudes once acquired become permanent. They are lasting and abiding. They become stable over a period of time. Since they are more or less permanent, an individual's behaviour can be inferred on the basis of attitudes.

Attitude involves subject object relationship: - Attitudes are not formed in abyss. They are always formed in relation to some person, object or situation.

Attitudes involve affective, cognitive and action components: - Affective refers to feelings, cognitive to knowledge and action towards inclination. A person will have some idea of knowledge about psychological object; will have feelings toward it and inclined to act positively or negatively.

Attitudes are inferred: - Attitude of a person cannot be known directly because he will not express them freely. Attitudes therefore can be predicted from individual's actions, behaviour or words.

1.5.4 Composition of Attitude

Attitude is consisting of three basic components as

    (i)   Thinking

    (ii)   Feeling

    (iii)   Reacting

The **thinking** aspect is associated with beliefs; it involves the thoughts of a person about the topic in question. The **feeling** part pertains to value, whether the person feels

attracted, repelled or neutral regarding the topic in question. The **reacting** element is an inclination towards behaviour, it is described as a reaction tendency in order to emphasize that an attitude may become manifest in overt behaviour.

1.5.5 Development of Attitude

Allport suggests four conditions of attitude formation as

     (i)   Integration

     (ii)   Differentiation

     (iii)   Trauma

     (iv)   Adoption

Integration is the development of attitude through collection of a large number of experiences over a long period of time, all of which influence the individual in given direction. **Differentiation** may be described as the divergence of a specific attitude from a more general one. Attitude formed due to **trauma** or shock is a typical violent or painful experience. Under the process of **adoption** the individual merely follows the example of friends, teacher, parents and other opinion making agencies.

1.5.6 Dimensions of Attitude

Attitude has four dimensions as

     (i)   Intensity

     (ii)   Extensity

     (iii)   Duration

     (iv)   Direction

Each of these is important in understanding attitudes and their influence upon behaviour. **Intensity** of an attitude is evidenced by the amount to which it motivates an

individual's behaviour. Limits of intensity can be determined by the nature of the barrier needed to avert a response. The direction of an attitude is observed in behaviour as force that casts aside, attracts or fails to motivate the child in any direction. Behaviour in a given direction commonly indicates a directly related attitude. **Extensity** is observed in a broad survey of the sequence of attitudes within the individual. Some attitudes seem to have broad and strong influences. These probably develop from a wide variety of situations that have augmented feeling until generalisation has occurred. A single potent incident of a sort that can be universalised may bring about an extensive influence. Other attitudes seem to be uncommon or at most related to only a small segment of behaviour. Actions that are unique in a particular child provide evidence of this type of limited attitude. **Duration** of an attitude is another important aspect that is important to educators. Attitude may carry on for a short period of time. New experiences may bring about a complete reversal of a previous attitude. In general, it can be said that an attitude endures as long as it promotes the goal objectives of the individual. It is evident that the attitudes are changed through strongly positive to negative or shades of change may occur between these extremes.

The individual judgement of these characteristics is done most frequently by observation of behaviour, but attempts have been made to develop tests to evaluate attitudes. Behaviour pattern provides evidence of each of these dimensions whereas most tests try to survey the attitudinal pattern and determine their positive or negative direction.

1.5.7 Measurement of Attitude

In the measurement of attitudes the following two underlying assumptions are basics:-

1) In any study of attitude measurement it is hypothesized that an individual's behaviour with respect to the object of attitude will be consistent from one situation to another. If consistency is not displayed, it is difficult to assess the individual's attitude.

2) Attitude can not be observed directly. It is, therefore, assumed that it must be ascertained from the statements and actions of a person that is; it must be inferred from behaviour -verbal or non-verbal- of the person.

In order to use the concept of attitude to anticipate action, it is necessary to have reliable and valid measures. Like the measurement of other psychological elements, the measurement of attitude is also indirect. Attitude is measured only on the basis of a person's action or verbal statements of belief or feeling of inclination towards the object. The attitude data are generally apprehensions of some kinds about one's beliefs or disbeliefs, acceptance or rejections, favouring or not favouring of some aspect of the environment. Definition of attitude has stressed the idea of degree of positive or negative effects with the object attitude scale provide us with one means of obtaining an assessment of the degree of effect. A well constructed scale consist of a number of items that have been carefully edited and selected in accordance with certain basis, as the items contained in any standardized test. Various methods of construction of attitude scale are:-

i)   Bogardus scale of social distance

ii)   Thurstone's method of equal appearing intervals.

iii)   Likert's method of summated rating.

iv)   Guttman's scale or cumulative scale.

v)   Osgood's semantic differential method

1.5.7.1 Bogardus' Scale of Social Distance

Bogardus was the first person to have developed a scale to measure attitudes. In 1924, he constructed the scale to measure social distance. The term social distance was first used by the sociologist Park. It is the distance at which members of a prejudice group hold another group and its members. Bogardus devised a list of statements which represents the diverging degree of social intimacy or distance. He asked the subjects to indicate the classification to which they would willingly admit members of a given group.

1.5.7.2 Thurstone's Method of Equal Appearing Intervals

This method is also known as Thurstone's technique of scaled values (Thurstone and Chave, 1929). A number of statements usually 20 or more are collected that express various points of view towards a group, institution, idea or practice. They are then presented to a panel of judges, each of whom arranges them in 11 groups ranging from one extreme to another in position. This sorting by each judge yields a combined position for each of the items. When there has been apparent disagreement among the judges in assigning a position to an item, that item is rejected. For items that are detained, each is given its median scale value 1 to 11 as established by panel. The list of statement is then given to the subjects, who are asked to check the statements, which will they agree. The median value of the statement that they check establishes their score or quantities of their opinion.

16

1.5.7.3 Likert's Method of Summated Ratings

The Likert's method of summated ratings can be performed without a panel of judges and yield scores very similar to those obtained by the Thurstone method. The first step in constructing a Likert type of scale is to collect a number of statements about a subject. The statements exhibit definite favourableness or unfavourableness to a particular point of view and that the number of favourable or unfavourable statements is approximately equal. After the statements have been framed, a trial test should be administered to a number of subjects. Only those items that correlate with test should be retained. This testing for internal consistencies will help to eliminate statements that are dubious. The attitude or opinion scale may be examined in several ways. The simplified way to describe opinion is to indicate percentage responses for each individual statement. For this type of analysis of item, three responses 'agree', 'undecided' and 'disagree' are preferable to the usual five. If a Likert type scale is used, it may be possible to report percentage responses by combining the two outside categories 'strongly agree' and 'strongly disagree'. This technique ascribes a scale value to each of the five responses. Thus the instrument yields a total score for each respondent and a discussion for each individual item.

1.5.7.4 Guttman's Cumulative Scale

The Guttman scale seeks to assess sets of statements to determine whether they all are linear in dimension. It is a cumulative scaling method which helps to determine whether the sets of statements used is one-dimensional or not. Though the concept underlying is highly legitimate but it has not been very useful in scaling items.

1.5.7.5 Osgood's Semantic Differential Method

This method is developed by Osgood, Suci and Tanenbaum in 1957. This method is similar to Likert method in that the respondent indicates an attitude or opinion between two intense choices. This method usually provides the individual with a 7 point scale with two objects at either end of the scale such as good-bad, unhealthy-healthy, clean-dirty. The respondent is asked to rate a group, individual or object of these bipolar scales. The results of semantic differential can be graphically displayed as profiles.

1.6 Educational Media

An incredible development in modern education is the increased use of ancillary devices by which the teacher through the use of more than one sensory channel helps to classify, establish and correlate accuracy, concepts, interpretations and appreciations, increases knowledge, arouses interest, and evolves worthy emotions and enhances the imagination of children.

Educational media can contribute remarkably to a communication process of its nature, by making the subject matter more easily attainable and increasing the retention factor. Researches suggest that in education one should appeal to mind through the visual and auditory sense organs, since it is possible that eighty-five percent of our learning is imbibed through these.

A visual aid is an instructional device that can be seen but not heard. An audio aid is an instructional device that can be heard. An audio-visual aid is that device which can be heard as well as seen. Among the auditory aids are phonograph and radio. Among the visual aids are motion pictures, stereoscope, camera, chalk board, flannel board,

pictorial material, bulletin board, and representations such as maps, diagrams etc. Among the audio-visual aids are sound motion pictures and television.

Audio visual aids are more convincing than other aids because they appeal to both visual and auditory sense organs. These are effective starters and motivators. When the child finds learning made easy and jovial with the help of sensory aids, he is motivated to learn. Direct, concrete, dramatized experiences add interest and liveliness to the learning situations. As a result they enable the students to learn faster, retain longer, gain more accurate information and receive and understand concepts and meanings easily.

Audio visual aids give multiplicity to classroom techniques. When these are used, the child experiences something different from ordinary school routine. They provide children opportunities to handle and manipulate. They can touch, feel and operate a model, specimen, picture or map. They provide direct, purposeful, first hand experiences and a sound base for skilful generalising. However, the audio visual programmes failed to make substantial contribution to educational programmes outside the formal system.

1.6.1 Overhead Projector

An overhead projector is a very fundamental but reliable tool used to display images onto a screen or wall. It consists of a large box containing a cooling fan and an intense bright light, with a long arm drawn out above it. At the end of the arm is a mirror that catches and deflects the light towards the screen. This type of projector can be used to magnify images onto the screen or wall for audiences to view. Transparencies can be placed onto the base to be seen by both the audience and the speaker. The device was

once a common feature in both classrooms and business meetings; although it has seen a decline in use as more advanced computer based projectors are favoured.

Overhead projectors were used during World War II as a device to train groups of servicemen. In the 1950s and '60s, it extended into the classroom as an educational tool, and then into the business world as a training tool. It reached its sales zenith in the 1990s, when almost every classroom and business place in America had one installed.

1.6.2.1 Types of projectors

The projector is most excellent used when the screen is approximately 6 to 12 feet (about 2 to 4 meters) from the projector. There are overheads that can increase the distance between projector and screen, but these are usually customised and the cost is greatly increased. The biggest disparity that can be seen between projectors is the type of optics used. There are three main types of optics that can be used in the overhead projector.

- A **direct optics** projector puts the optics and light source in a straight line, admitting the image to be reflected from a mirror onto the screen. It's a very common form, and comparatively inexpensive, but it can get quite hot.

- **Folded optics or chamber optics** has a mirror placed in between the lamp and the lens, and a light source that is encompassed by an elliptical faceted reflector. This has a number of advantages, including making the resolution quite clear, and making more light available to project the image. This model is usually cooler than direct optic versions.

- Another type is the **reflected light optic**, which has an especially designed lens that is supported by a mirror. The light source inclines light to the lens and is reflected by the mirror. The reflected light is directed back through the lens and

onto the main projective lens. The light is then focused to a second mirror and upon the screen. The reflected light optic is used more in handy overhead projectors, and the cooling system, light source, and main projection optics are all placed in one unit. The entire projector can be folded down into a case for easy movement. Although still used in many classrooms around the world, these devices are on the diminution. Some critics still favour them for their reliability, however, and claim that they are far easier to use than the more complicated digital versions.

1.6.2.2 Use in Education

The overhead projector aids in an easy low-cost interactive environment for educators. Teaching materials can be pre-printed on plastic sheets, onto which the educator can directly write using a non-permanent, washable colour marking pen. This saves time, since the transparency can be pre-printed and used again and again, rather than having materials written manually before each class. The overhead is usually placed at a comfortable writing height for the educator and allows the educator to face the class, facilitating better communication between the students and teacher. The enlarging quality of the projector allow the educator to write in a comfortable small script in a natural writing position rather than writing in an unduly large script on a blackboard and having to continually hold his arm out in midair to write on the blackboard.

When the transparency sheet is full of written or drawn material, it can simply be retrieved with a new, fresh sheet with more pre-printed material, again saving class time versus a blackboard that would need to be annulled and teaching materials rewritten by the educator. Following the class period, the

transparencies are easily returned to their original unused state by washing off with soap and water.

1.6.2 Computer

Computers are the main technology support as a device for effective learning and teaching process. Computer based instruction and computer programs as devices provide much convenience and assistance to students' educational life. Computers are update mechanism for the education and it is not only for education, these developments influence all global, cultural, economical life standards as well.

The computer as productivity tool has great capacity in education. Computers include hardware and software, word processing functions, graphics, programmed instruction for problem solving, spreadsheets, databases, networking and telecommunication for today high technology developments as a contemplative to education. Computers help to convert teacher based instruction to child centred instruction with providing multiple intelligence atmospheres to the educational cycle (Forcier, 1996).

Computers can be used as an effective tool to support the acquisition of basic learning skills. Christensen, (2002); Vannatta & Fordhan, (2004) maintained that teachers' attitudes and experience are factors associated with computer use. Both positive attitudes about technology and technology skills in combination are accepted precursors for effective use of technology (Migliorino & Maiden, 2004).

1.6.2.1 PowerPoint Presentation

PowerPoint presentation can be very convincing way of involving all the senses and attention of all the students. Teachers can master the basic principles of striking PowerPoint presentations and more advanced features of the software

program while they also plan absorbing and discrete learning opportunities for the students. The PowerPoint based lectures are interesting. Using computer PowerPoint is widely used as presentation programme. It originated in the world of business but has now become a commonplace item in the world of educational technology.

It is fundamentally electronic slides where a teacher can drive in files such as texts, music, pictures, diagrams or whatever is required. PowerPoint authorise the teacher to increase the quality of written material and visuals they present to the students in the class. It offers some marked advantages. PowerPoint presentation can be made in advance, thereby adequately increasing the time available to the teacher; also PowerPoint makes it possible to provide a much richer quality of visuals including multicoloured sophisticated diagrams and pictures. The whole presentation of contents of a lecture can be stored in computer.

In its simplest application, PowerPoint presentation is a lecture with pictures. Students' capacity can be increased through visual learning, so PowerPoint can be effectively used for comparison of ideas. The presentations are easy to change and adapt to changing situations because of the design and layout templates. By adding suitable clipart, animation, transitions and timing, a PowerPoint presentation can be used to raise students' interest. The ability to set up a show to run independently increases its adequacy. By using hyperlinks, the teachers can add media files, pictures, music video and internet sites to develop a multimedia presentation. Instead of long topic, a series of short 5-7 slides

around a main topic can be prepared. Each small presentation covers a distinct related topic. PowerPoint is a reliable method to engross students with content. This kind of presentation can be used to improve the effectiveness of classroom instructions in many ways.

- Main points can be emphasized and presented itself, can be embellished by using graphics, animation or sound.

- Add style to presentation with slide and bullet transitions and animated effects.

- Presentations can be used to make lessons more organised and adjustable.

- Text on PowerPoint is accessible for students to read than trying to read notes that are written on an OHP or chalkboard.

- Students' interest can be aroused through the use of graphics and cartoons.

- Variety is the key to hold the attention of students.

1.6.3 Smart Class

A Smart classroom is one assembled with multimedia components designed to improve instruction and learning. It is a solution which is outlined to help teachers in the field of teaching and learning, meeting with new challenges and developing the abilities of students and their attainment too.

Smart class from Educomp Solutions, one of the first Indian companies in education field came up in the year 2003. Educomp is one of the largest education companies in India taking care of whole education life cycle of students. Its founder is Shantanu Prakash with its headquarter at Gurgaon and 10 offices all over India. It is an in-the-

classroom technology solution that has altered teaching and learning, across over 10,000 schools, reaching out to millions of students.

Smart classes are available on internet for teachers and students. It can be installed on the local server for faster access. We can also say that smart class is nothing but this is a new and exclusive way to teach students. In smart classes there is a big screen on the wall (somewhat similar to the blackboard) and projectors. This technique make easy to learn and memorise things and also works like computer screen and blackboard too. Through this technique students can visualise and learn nearly everything very easily. Even the dull student of the class also takes interest in the class and tries to learn the things. Through this approach they get a chance to see new things, experiments, incidents etc.

In smart classes, computer mediated instructions are given. Such classes are fitted with computer systems and white boards on which content can be saved, stored and viewed online. It reduces the physical and mental stresses caused by traditional teaching for e.g., carrying heavy school bags, making notes from text books, mugging the content, overpressure of homework etc. In smart classes teacher gives instructions on whiteboards by using computer system or laptop. The students post their homework online. The smart classes are designed in a way so as to make teaching more interactive with video conferencing and live broadcasting and the teaching objectives are successfully achieved in relatively less time. Smart classes have made blackboard and chalks a thing of the past. It includes all the sensory motors, which results into the comprehensibility of concept and leads cognitive as well as connative and psychomotor development. In such classes chance is provided to each and every child to interact with

teachers, scholars and other students. It plays an important part in the behaviour development and social alertness.

Smart class in easy words is a real teaching aid and which makes the learning process more active and easy. This gives a chance to the students to break away from the dullness of sleepy classes. For example, some 7-8 years ago, teachers used to teach about Solar System just by raising their books or by saying "look into your books" or by drawing a rough diagram of the solar system, by which students were unable to get the real image of the solar system and the planets and were not able to grasp the things properly and they find class dull. But by the concept of smart classes they are not only able to get the real image of the solar system but also getting the concept of rotation and revolution. The teacher can also write on the screen with the pen specially made for that purpose.

The technique of smart classes is bringing an ample revolution in the field of teaching and learning. This method of learning is expected to enrol children in the process of learning. These also help teachers to increase their capability. This method also saves time through quick assessment methods and also affects the understanding and performance of students.

Smart class is a digital enterprise which is speedily transforming the way teachers teach and students learn in schools with innovative and significant use of technology. Powered by the world's largest warehouse of digital content designed to Indian school curriculum, smart class brings in technology right next to the blackboard for teachers in the classrooms. Students learn difficult and abstract curriculum concepts watching very engaging visuals and animations. This makes learning an enjoyable experience for

students while improving their overall academic performance in school. Smart class also allows teachers to quickly assess and evaluate the learning achieved by their students in class with an innovative assessment technology-smart assessment system designed.

1.6.3.1 Need of Smart Class

The concept of smart class education is certainly a blessing to the students of the 21st century. Technology is altering the way life functions. In the modern age technology, the smart class is needed due to the following reasons:-

✓ **Provision for real experiences: -** Smart boards are much smarter when it comes to field trip which is impossible with textbooks. A field trip to the deserts of Sahara or the rainforests of the Amazon Basin becomes easy with visuals in the smart boards of smart classroom. These visuals are certainly more attractive than those descriptions in a few lines of a textbook.

✓ **To avoid health problems:** - Some students and teachers have problems with chalk dust and they are likely to suffer from allergic reactions. The smart boards rescue from such distress and won't let to develop any health issues later.

✓ **Provision for best education for all kinds of students.**

✓ **Provision of individual difference: -** A classroom has students with diverse power of understanding and learning, and studying from notes and other materials becomes difficult for some students.

✓ **Ease of the learning process: -** The use of smart classes and modern technology gratifies the learning process for all students.

✓ **Scope for more interaction:** - It advocates more interaction between teacher and students with more participation from both sides.

1.6.3.2 Benefits of Smart Class

Smart classes have certain benefits as given below:-

- **Interactive—**Smart boards are interactive, bestowing the chance for high school students to take part in the instructional process. Students who are engaged in the instructional process are likely to learn more. Interactive whiteboards are equipped with the ability to touch, write and to draw to demonstrate understanding and students work can be saved to be use later. The interactive whiteboard also provides an approach for quick assessment with immediate feedback. Students can complete multiple choice assessments using clickers that correspond with the whiteboard.

- **Immediate feedback—**To augment by quickly identifying areas that needs to be reviewed.

- **Multiple technologies and diversity of software—**The possibilities of accommodating other technologies and a variety of software packages are impressive. A video camera, camera or document camera can be attached to the whiteboard for instruction. In a high school science class, the dissection of a frog can be projected on to the whiteboard. Through even greater technological progress, the viewing lens of a classroom microscope can be connected to the interactive board. It presents the same technological capabilities as a computer. Students can access or contribute to the presentation via a notebook or tablet.

- **Data storage and retrieval—**Interactive whiteboards can store the data generated during the class lecture and later retrieved for review or can be e-

mailed to an absent student. Everything that is done in a high school class, whether student or teacher developed, can be saved and later altered. Instruction becomes extensive for across classes, and materials can then be downloaded, printed or even e-mailed to absent students.

- Improves teachers' effectiveness and productivity in class.

- It brings abstract and challenging curriculum concepts inside classrooms.

- Makes learning an enjoyable encounter for students.

- Augment academic performance of students.

- Enables quick formative assessment of learning outcomes in class.

- It also enables teachers to quickly assess and evaluate the learning achieved by their students in class.

- Students come across the sessions in smart class interesting and fulfilling, it is an innovation in the method of teaching.

- Smart class has a great visual influence on our learning and it helps students understand and retain topics better.

- The smart class programme makes the classroom sessions very interesting and interactive.

- Children are not sleeping in the classroom anymore.

- Smart class is bringing digital innovations in the classrooms.

- Teaching and learning have indeed become very appealing and effective.

1.6.3.3 Disadvantages of Smart Class

Smart classes have certain disadvantages such as:-

- Limited direct contact with students and professors.

- Fewer opportunities for student and campus activities.

- Subject to "technical difficulties" and system failures.

1.7 Role of Educational Media Programmes

Needless to say the role of educational media and its importance in this stupendous effort is obvious and this has been realised and acknowledged at least at the conceptual level and to a considerable extent at the implementation level. Education can thus reach a take off stage with the help of novel technologies and can be made available for achieving universalisation of education and qualitative improvement of school education level. This would remove differences in the educational facilities available to the disadvantaged and provide individualised instruction to learners conveniently suitable to their needs and pace of learning.

In this regard, the **International Commission on Education for 21st century, 1996** indicated that, *"the exposure of children to multimedia will bridge the gap between the privileged and underprivileged sections of society because the latter group will have the opportunity of learning from expensive instructional equipments and materials which the economically advantaged people would have acquired on their own or through specialized paid centres. Thus the establishment of multimedia centres can pave the way for quality and equality in education for all."*

National Focus Group Position paper on Educational Technology, 2005 states that *"the country has now reached a stage where education must take recourse to the discipline of Educational Technology in organising education because the challenges that the country faces today are far graver than before; bring about a sea change in education can possible only if one take recourse to using ET in micro and macro*

modules, using any technology whether old or new that is appropriate. There is no other option if one is thinking of not leaving any child behind and providing learners with education that is high both in equity and quality."

It is accountable to mention that the use of educational media programme is a very crucial input towards enhancing the quality of education and they are also able to wipe out gaps between rich and poor, urban and rural, skilled and unskilled manpower, availability and accessibility, trained and untrained, equipped and unequipped, motivated and non motivated, interesting and disinteresting methods of organising secondary school activities. The function and importance of electronic media viz. radio, television, slide projector, overhead projector, microcomputer cannot be ruled out. Needless to say that in this age of e-learning with growth of new media of communication, the use of traditional old media is being replaced slowly by them.

1.8 Significance of the problem

Considerable changes in the field of educational technology took place after 1986. Under the NPE 1986 new educational technology scheme was launched by Government of India with an aspect to increase the reach and quality of education provided to a large number of learners. At planning and policy making level constant efforts are initiated to materialise the goals of NPE-1986 and POA-1992 for better utilisation of educational media at school. According to National Curriculum Framework 2005, the key to meeting the challenge of attaining quality in education is through the appreciation of the role of educational technology as a channel of change in the classroom, which includes the teacher and the teaching learning process.

Educational media help in adding elements of reality for example, including pictures or highly involved computer simulations in a lecture. Media can be used to support the educational activities like to gain attention of the students, recall pre-requisites, presenting objectives to the learners, presenting new contents to the students. So there is a need of innovative educational media to make teaching learning process more effective.

Through the extended exploration of ideas and techniques for education a new realm of theory has developed under the name, "evolutionary education psychology" (Rani, 2013). Evolutionary Educational Psychologists like David Geary and David Bjorklund, purport that there is a difference between how children would prefer to learn and how they currently learn. In this framework studies are required that can guide the teachers to use different educational media in their teaching. Apart from this the teachers' role is to select the appropriate educational methodology for establishing student engagement, both affective and cognitive.

But the convincing use of educational media in a classroom depends upon the attitudes of teachers and educators to apply technology in schools' daily pedagogical practices. Various studies are there on studying the attitude of educators. **Kishore (1996)** made an attempt at the understanding of the issue of relationship among gender, science, technology and mathematics while **Singh (2015)** studied the attitude of urban and rural male and female teachers about ICT. **Panchaiyappan (2016)** studied the attitude of teachers of higher secondary school with respect to gender, teaching experience, educational streams and type of management. There is a significant relationship between the experience level and favourable attitudes towards the use of ICT tools

(Suliman, 2014). To add, **Yunus (2007)** proved that positive attitude towards ICT usually foretell further future computer use. **Brinda, S. et.al (2012)** found that attitude of ICT among below 25 years is higher than above 25 years B.Ed. trainees.

Effects of instructional methods have been measured by assessing students' attitude towards the instruction (Barlett & Strough, 2003; Buzzel et al, 2002; Kim & Kem, 2005; Richardson, 1997; Suussikind, 2005) Most of these studies reported that students attitude towards instruction were becoming more favourable after they were exposed to new technology based instructional material (**Yamauchi, LG, 2008**).

Studies showed that media or computer mediated education had effects on learners in a positive way. Students can comprehend the more factual understanding through educational media presentations rather than teacher in classrooms. And for smooth utilization of media in classrooms a favourable attitude of teachers, educators and learners is important.

The review of related research reveals that though researches had been done on educational medias, no such study had been conducted that cover all three medias viz., OHP, Computer and Smartclass. A series of studies of different nature focusing on the varied aspects and dimensions of educational media is the need of the hour. The information obtained through such studies may lead to certain findings of practical utility for effective conduct of the educational media programmes. The present study under investigation will be one such attempt.

1.9 Statement of the Problem

"Attitude of principals, teachers and students towards educational media and its utilisation at secondary school stage in Lucknow city."

1.10 Definition of Key Words

Attitude: - Thurstone & Chave (1929) had defined Attitude as the degree of positive or negative effect associated with some psychological object.

Educational Media: - Educational media refers to transparencies through overhead projectors or PowerPoint presentations or educational smart classes that are designed to teach school students directly or indirectly in classroom whose basic purpose is to contribute to the education of its listeners or viewers other than entertain.

Utilization: - Utilization refers to the use of educational smart class programme, overhead projectors and computers by school teachers for education of their students.

Secondary School Stage: - Class IX and X in a school is known as secondary school stage.

1.11 Objectives

1) To study the attitude of Principals towards Educational Media at secondary school stage in relation to their board of the school, gender, age and teaching experience.

2) To study the utilization of Educational Media according to the Principals at secondary school stage in relation to their board of the school, gender, age and teaching experience.

3) To study the extent of utilization of Overhead Projector, Computer and Smartclass in CBSE and ICSE board schools according to the Principals at secondary school stage.

4) To study the attitude of Teachers towards Educational Media at secondary school stage in relation to their board of the school, gender, age, teaching experience and teaching subject.

5) To study the utilization of Educational Media by the Teachers at secondary school stage in relation to their board of the school, gender, age, teaching experience and teaching subject.

6) To study the extent of utilization of Overhead Projector, Computer and Smartclass in CBSE and ICSE board schools by the Teachers at secondary school stage.

7) To study the competence level of Teachers in using educational media at secondary school stage in relation to their board of the school, gender, age, teaching experience and teaching subject.

8) To study the attitude of students towards Educational Media at secondary school stage in relation to their board of the school and gender.

9) To study the utilization of Educational Media according to the Students at secondary school stage in relation to their board of the school and gender.

10) To study the extent of utilization of Overhead Projector, Computer and Smartclass in CBSE and ICSE board schools according to the students at secondary school stage.

1.12 Hypotheses

Related to Objective No.1

1.1There is no significant difference in the attitude of principals of CBSE and ICSE board schools towards educational media at secondary school stage.

1.2 There is no significant difference in the attitude of male and female principals towards educational media at secondary school stage.

1.3 There is no significant difference in the attitude of principals in the age group of 21- 40 years and the principals in the age group of 41-60 years towards educational media at secondary school stage.

1.4 There is no significant difference in the attitude of principals with a teaching experience of 1-20 years and the principals with a teaching experience of 21-40 years towards educational media at secondary school stage.

Related to Objective No.2

2.1 There is no significant difference in the utilization of educational media in CBSE and ICSE board school according to the principals at secondary school stage.

2.2 There is no significant difference in the utilization of educational media according to male and female principals at secondary school stage.

2.3 There is no significant difference in the utilization of educational media according to principals in the age group of 31-45 years and 46-60 years at secondary school stage.

2.4 There is no significant difference in the utilization of educational media according to the principals with a teaching experience of 1-20 years and 21-40 years at secondary school stage.

Related to Objective No.3

3.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer in CBSE board schools according to the principals at secondary school stage.

3.2 There is no significant difference in the extent of utilization of Computer and Smartclass in CBSE board schools according to the principals at secondary school stage.

3.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in CBSE board schools according to the principals at secondary school stage.

3.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer in ICSE board schools according to the principals at secondary school stage.

3.5 There is no significant difference in the extent of utilization of Computer and Smartclass in ICSE board schools according to the principals at secondary school stage.

3.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in ICSE board schools according to the principals at secondary school stage.

Related to Objective No.4

4.1 There is no significant difference in the attitude of teachers of CBSE and ICSE board schools towards educational media at secondary school stage.

4.2 There is no significant difference in the attitude of male and female teachers towards educational media at secondary school stage.

4.3 There is no significant difference in the attitude of teachers in the age group of 21-40 years and teachers in the age group of 41-60 years towards educational media at secondary school stage.

4.4 There is no significant difference in the attitude of teachers with a teaching experience of 1-15 years and teachers with a teaching experience of 16-30 years towards educational media at secondary school stage.

4.5 There is no significant difference in the attitude of teachers teaching science subjects and teachers teaching arts subject towards educational media at secondary school stage.

Related to Objective No.5

5.1 There is no significant difference in the utilization of educational media by the teachers in CBSE and ICSE board school at secondary school stage.

5.2 There is no significant difference in the utilization of educational media by male and female teachers at secondary school stage.

5.3 There is no significant difference in the utilization of educational media by teachers in the age group of 21-40 years and 41-60 years at secondary school stage.

5.4 There is no significant difference in the utilization of educational media by the teachers with a teaching experience of 1-15 years and 16-30 years at secondary school stage.

5.5 There is no significant difference in the utilization of educational media by the teachers who teach Science subjects and teachers who teach Arts subjects at secondary school stage.

Related to Objective No.6

6.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer by the teachers in CBSE board schools at secondary school stage.

6.2 There is no significant difference in the extent of utilization of Computer and Smartclass by the teachers in CBSE board schools at secondary school stage.

6.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector by the teachers in CBSE board schools at secondary school stage.

6.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer by the teachers in ICSE board schools at secondary school stage.

6.5 There is no significant difference in the extent of utilization of Computer and Smartclass by the teachers in ICSE board schools at secondary school stage.

6.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector by the teachers in ICSE board schools at secondary school stage.

Related to Objective No. 7

7.1 There is no significant difference in the competence level of teachers in using educational media in CBSE and ICSE board schools at secondary school stage.

7.2 There is no significant difference in the competence level of male and female teachers in using educational media at secondary school stage.

7.3 There is no significant difference in the competence level of teachers in using educational media who are in the age group of 21-40 years and 41-60 years at secondary school stage.

7.4 There is no significant difference in the competence level of teachers in using educational media who have a teaching experience of 1-15 years and 16-30 years at secondary school stage.

7.5 There is no significant difference in the competence level of teachers in using educational media who teach science subjects and those who teach arts subjects at secondary school stage.

Related to Objective No.8

8.1 There is no significant difference in the attitude of students of CBSE and ICSE board students towards educational media at secondary school stage.

8.2 There is no significant difference in the attitude of boys and girls towards educational media at secondary school stage.

Related to Objective No.9

9.1 There is no significant difference in the utilization of educational media in CBSE and ICSE board school according to the students at secondary school stage.

9.2 There is no significant difference in the utilization of educational media according to boys and girls at secondary school stage.

Relate to Objective No. 10

10.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer in CBSE board schools according to the students at secondary school stage.

10.2 There is no significant difference in the extent of utilization of Computer and Smartclass in CBSE board schools according to the students at secondary school stage.

10.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in CBSE board schools according to the students at secondary school stage.

10.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer in ICSE board schools according to the students at secondary school stage.

10.5 There is no significant difference in the extent of utilization of Computer and Smartclass in ICSE board schools according to the students at secondary school stage.

10.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in ICSE board schools according to the students at secondary school stage.

1.13 Delimitations

1) The study is delimited to secondary schools of Lucknow.

2) The study is delimited to the utilization of only three educational medias; transparencies presentation through OHP, PowerPoint presentation through computer and educational smartclasses.

3) The study is confined to class IX students.

4) The study is confined to principals and teachers working and students studying in secondary school of Lucknow.

5) The study is confined to CBSE and ICSE board secondary schools.