CHAPTER 1

INTRODUCTION

1 INTRODUCTION

Educationalist a tool to change the way of thinking and acting towards a goal that has meaningful value in life both individually, society, or state. Education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation, and state. So, through education, the pattern of thinking is instilled, instilling values, developing self-potential and forming personality, so that it can be transformed from generation to generation for the sake of human civilization in the life of society, nation and state. Education has the most important role in the civilization of human life so far. All innovations in human life from all walks of life begin with education. Without education, the perceived civilization will never happen, life will continue on the law of the jungle. Various modes and methods of education continue to change from time to time following the demands of the times and patterns of human life, to the life of modern society today such as basic needs which are almost the same as the primary needs of humans such as eating and drinking.

1.1 Education

The term 'education' has been interpreted by different people in different ways. Some people refer to it as formal schooling or to lifelong learning. Some others refer to it as acquisition of knowledge, skills and attitudes. Some say that education is nothing, but training of people's mind in a particular direction to bring about desired changes. If we ask a statesman, an artisan, a teacher, a parent, a philosopher and a student about what education means to them, you would be surprised to know the multiple interpretations and views people have about education. This only shows that education doesn't have one precise universally accepted definition. It has various meanings with various functions. Analysis of these meanings would help us to understand

what education really is. Etymologically, the word education is derived from the Latin word 'educare' meaning 'to raise' and 'to bring up'. According to few others, the word 'education' has originated from another Latin term 'Educere' which means 'to lead forth' or 'to come out'. These meanings indicate that education seeks to nourish the good qualities and draw out the best in every individual. Education seeks to develop the innate or the inner potentialities of humans. Some other educationists believe that the word 'education' has been derived from the Latin term 'Educatum', which means the act of teaching or training. The meanings of these root words lead us to believe that education aims to provide a nourishing environment that would facilitate or bring out and develop the potentialities in an individual. In the Dictionary of Education (edited by C.V. Good, 1973), education is defined as "the aggregate of all the processes by which a person develops abilities, attitudes and other forms of behaviour of practical values in the society in which s/he lives; the social process by which people are subjected to the influence of selected and controlled environment (especially that of the school), so that they may obtain social competence and optimum individual development".

1.1.1 Education and its Importance

One of the very vital tool to achieve immense success in this world is education.

Education is a process of gaining knowledge and skills. As a student gains more education his knowledge keeps on increasing and skill sets tend to multiply with time. An educated person is considered an asset to not only the society but also to the country. His civic sense and moral education defines him a better fit for the society. In today's competitive world where almost every country is free to trade and do business with one another, the most important factor of production is labour or to be precise human capital is the most expensive yet a deciding factor of a company's success. How much successful a company would be or for how long a company will survive majorly depends on the human capital available at its side. For the same, a company not only requires human to work for it but they want employees who are skilled and even educated. Human capital is a key to success for

every company in today's competitive world. Many companies want to hire skillful and people with higher qualification. The more educated you are higher the chances of you getting a good job with good pay. Hence how skillful and knowledgeable an individual be is largely influenced by the education one takes. That is why education, indirectly, plays a very crucial role for companies around the world.

Education not only helps to produce moral values but it also helps to inculcate respect for spirituality and ethics. It aids the society in creating a human being which has feelings and emotions. A person who is responsible enough to think about their country, society and other human beings while taking any big step. Education truly evolves a person from being unjust and cruel to being selfless and sensitive.

Education should not only be theoretical but also practical and applicable as per today's time. If the education only provides knowledge but it's applicability in today's world is practically zero then the mission of education is not fulfilled. For example, if the students are learning technologies which are already outdated, even if they graduate as Engineers, still they won't be able to find jobs and even if they find a job as engineers they would not be able to perform better at their job since their knowledge is practically useless. In education, it is important to note that practical or real life examples are quite helpful in ease of learning. Example, while explaining a concept of economics, say demand and supply, only talking about definition and theory is not a complete knowledge. To make sure the students understand the concept of demand and supply, teachers can give real life examples like that of buying a product from one market and how its prices differ with change in demand and supply.

Education also promotes literacy. Literacy is very important in any country. Higher the literacy rate of a country better is the performance of their economy. Literacy means ability of a person to read and write. Reading and writing is an important aspect of a person's life. In daily basis we have to read and/or write many things, exchange information, share knowledge. Without the literacy a person is practically handicap in today's world to do most of the work. There is high probability that a person with lower literacy

can make wrong decisions since he has to rely on others to read and write the information and the other person can fool him easily.

1.1.2 Modes of Education

The ways in which education takes place or the processes are carried out in educating the child are known as modes of education. It is the manner in which all the educational activities are carried out. In order to understand different modes of education, let us try to understand how education has developed historically. We must be familiar that earlier education was confined to a limited number of people who could afford it. This was the privileged class or the so called elites who only had a reach to education. However, with the passage of time and realisation of the importance of education by all nations including India towards its contribution in nation building, the outreach of education has now been expanded to every citizen. With the implementation of national schemes like DPEP and later SSA and RMSA, compounded by the RTE Act 2009 in India, the spread of education has widened to a great level. In order to meet this huge demand of education and with the advancement in technologies, lots of ways and means or modes are available to provide education at every door step. It may take place formally or informally and sometimes consciously in a non formal manner.

1.1.2.1 Face to Face learning

From the time when the concept of education has evolved till now, it has changed drastically. It has not only changed in the way it is conducted but it has also progressed in the way a learner perceives it. One of the way in which education is conducted is Face to Face Education. This is one of the important way where a student learns faster and in details about various topics. From quite a long time people have defined f to f education in their own way and even today in many countries many of the education institutes strongly support and follow the f to f education as a medium of teaching and learning.

When the learner is in direct contact with the instructor in a f to f situation, it is called the face-to-face mode of imparting education. Such a situation exists in case of classroom teaching in the schools where teacher and the pupils physically remain present in a face-to-face manner at the time of getting

education. This is regarded as the most effective mode of education as there is a greater scope for a learner to interact with the teacher and the teacher also can explain as per the need and requirement of the learner. This is the most used and the most demanded mode of education. It is also known as the traditional or the conventional mode of providing education. The face- to-face mode can be organised full time or part time depending upon the need of the learner and the time devoted for the purpose. When the learner devotes the time or does the work as per the time prescribed for the education one intends to get, it may be called full time face-to-face mode. It is the learning according the requisite hours of the course per day at one stretch without breaking it into parts. The learner in such a situation learns at the pace of the institution or the course. The learner is registered with institution for the period needed for the education and attends the institution accordingly. This type of education is usually being provided in schools across the country. Most of the formal education is available in this mode at all levels. If the learner is not in a position to devote the prescribed time for the course because of one's compulsions, the full time courses are bifurcated into part time courses. It is for convenience of the learners to get more time to complete the courses at their pace. In such a case, the duration of the same course has to be increased. It is mostly done to accommodate the learners already in job or having some other compulsions so that they are not deprived of education. In this mode, except for the increased duration of the course, all other things remain the same as in full time face-to-face mode. It is an alternative to the full time face- to- face mode. It may be noted here that the semester courses are not part time courses; rather they are full time courses.

1.1.2.1.1 Key Characteristics of Face-to-Face learning

F to F session is a convention between participants and instructor. It is a direct contact session between the tutor and learner. It sustains the relationship among the participants and encourages the sharing of knowledge. The interactive sessions such as classes, seminars, workshops, and conferences are examples of f to f events in which all participants physically meet together at same locations at specified timings. The f to f

sessions involve experts and faculty appointed to guide the participants, provide feedback and suggestions. The resource material such as handwritten notes or documents, posters, drawings, objects, can be used to highlight points, to sustain attention of the participants and to help convey a difficult concept during f to f session. The Face to Face sessions are useful for exchange and thoughts, suggestions and ideas between participants. It maintains direct contact with the instructor to understand the concept being taught. It is helpful for sharing of knowledge and experience. Facial expressions, eye contact, praise, body language and the tone of voice of the instructor are helpful for effective communication. The important points can be explained well and participants will get immediate feedback during the session. It is also helpful to the participants to communicate and share their views with each other.

1.1.2.1.2 Advantages

During Face To Face mode, it is possible to create appropriate learning environments. Teaching can be structured in such a way that the learner plays active roles to develop and acquire new knowledge. The classroom can be transformed into any knowledge place for field experiences which will be helpful for real community experiences. It is the instructor who can establish relevant learning environments, follow appropriate pace for teaching. The instructor can develop suitable learning environment for effective learning. The instructor is free to perform various learner-centred activities for purposeful learning.

- Face to face mode of learning holds the potential to develop motivational skills, study habits and generate anxiety among the students.
- In face-to-face learning situations, instructors can switch to healthy environment for learning and as per the need of the learning situations. They can control the learners' attention and activities and create alternative arrangements during communication if the situation demands.
- The instructor is free to organise interactive sessions and group activities in the classroom with suitable techniques of learning.

- The variety of teaching styles can be grouped together for effective teaching- learning to achieve desired goal. The body language, the facial expressions of the teacher are very effective in classroom settings.

- Personal attention to the learner's progress is possible in Face to Face mode and guided practice sessions can be organised by the instructor.

- Many students tend to learn in groups. In Face to Face mode, group discussions and exchange of ideas can take place under control conditions by the instructor.

- The instructor can design suitable environment in the classroom settings to suit his/her particular teaching style.

- The lecturer supplies study notes in class, and additional notes can be taken to help students pass your exams.

- Students can share and compare notes with their classmates.

- Questions get answered in real time, which means learners don't have to wait for the lecturer to get back to them.

- The lecturer may point out important sections in the textbook, which can help the learners prepare for your exams.

- The institute will give a timetable with class dates and times.

- Assignments are handed in personally, which means the learners do not have to worry about their work getting lost or not handed in.

- Learners can get feedback on their assignments and exams in real-time. No long waiting periods.

- If learners forget a textbook or class notes at home, they will either have to get along without it, or ask a fellow student to share his/her books with them.

1.1.2.1.3 Disadvantages of Face to Face mode

In a traditional Face to Face methodology of learning, a teacher teaches and students inactively listen and try to acquire knowledge. All the learners must follow the teacher and often the effective methodology for teaching is not taken into consideration while teaching. The teacher does not think about that the methodology of teaching which is suitable to teach one topic of syllabus may not be suitable for another topic. Further, the teacher decides the lesson

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to be learnt, teaches as per his pace and teaching style. The learners face difficulties in learning the contents who do not adjust their learning pace with the teacher.

1.1.2.2 Online learning

Rapid developments in technology have made online education easy (McBrien et al., 2009). "Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning, for ex.) have in common the ability to use a computer connected to a network, that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means" (Cojocariu et al., 2014).Online learning can be termed as a tool that can make the teaching–learning process more student-centered, more innovative, and even more flexible. Online learning is defined as "learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students" (Singh & Thurman, 2019). The synchronous learning environment is structured in the sense that students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback, whereas asynchronous learning environments are not properly structured. In such a learning environment, learning content is not available in the form of live lectures or classes; it is available at different learning systems and forums. Instant feedback and immediate response are not possible under such an environment (Littlefield, 2018). Synchronous learning can provide a lot of opportunities for social interaction (McBrien et al., 2009).

1.1.2.2.1 Teaching in the online classroom

For teachers accustomed to teaching at the front of the classroom, the move into the virtual world presents new and interesting challenges. How do teachers create the same kind of connections with students when they are no longer physically sitting in front of them? How do teachers know if someone is paying attention or if a particular student is truly absorbing the subject matter when he/she can't make eye contact and directly observe their behaviour? While it takes some adjustment, teaching in the virtual classroom

can be an exciting, dynamic and engaging experience. What best practices can teachers draw upon when teaching in an online classroom? Here are some suggested best practices and observations for instructors looking to hone their approach:

- Similar outcomes: Based on study evidences, blended and purely online learning conditions generally result in similar student learning outcomes.

- Prompt learner reflection: Online learning can be enhanced by giving learners control of their interactions with media and by prompting learner reflection. Studies indicate that manipulations that trigger learner activity or learner reflection and self monitoring of understanding are effective when students pursue online learning as individuals.

- Support mechanisms: When groups of students are learning together online, support mechanism such as guiding questions generally influence the way students interact, but not the amount they learn. These tactics work better when leveraged on a individualised basis.

- After instructions: Use data provided by a learning management system to alter instructions, adapt to various learning styles and provide early intervention when a student is struggling.

- Reorient the plan: Take the time that would typically be spent in a traditional classroom on lesson planning and reorient it towards communicating with students and giving feedback.

- Easy access: Presents learning materials in multiple formats- from labs to video to text to provide alternative learning paths and increased accessibility.

- Keeping up: Stay active within the course by frequently checking message boards, grading, facilitating discussions and providing feedback.

- Sustainable improvements: Commit to continual improvement both in terms of curriculum and in the use of technology for learning.

Other practices for online teaching:

- Establish a nurturing and supportive environment that reduces stress associated with academic difficulties and peer conflicts. Brain research has confirmed a link between cognitive and affective learning domains.

When students feel threatened, stress hormones are released that interfere with the processing of information. Memory and learning are impaired (Jensen, 1998).

- Ensure that communication between faculty and student must be constant and effective to include e-mail, web-based conferencing (webinar), courseroom postings, online discussions and phone contacts. FaceTime and Skype should be included for those students who need the personal approach.

- Provide cooperative learning opportunities to facilitate critical thinking, brainstorming/problem solving, study groups and the use of dyads and peer assessment activities.

- Provide experiential and active learning activities, utilizing Bloom's Taxonomy to activate areas of the brain responsible for higher order thinking that address the construction of knowledge through analysis, synthesis and evaluation. These activities require students to make decisions, conduct experiments, and explore ways to solve real-world problems, case studies, role-playing, and scenarios to promote a higher level of achievement.

- Give punctual feedback regarding students' posts, within courseroom, through e-mail, courseroom assignment postings, or whatever is agreed upon by teacher and students Structure opportunities for practice and establish peer tutoring when necessary.

- Express high expectations of students by continually motivating, commending successes, and providing stimulating activities to support active learning.

- Embrace cultural diversity and different learning styles by incorporating Gardner's Multiple Intelligences (1983) to address varied learning styles and engaging students' academic strengths.

- Provide differentiated instruction, by channeling in, personally, to all students' needs, so that all learners can be reached and developed to their fullest potential.

- Discuss and define course policies, teacher expectations and plagiarism early in course. Differentiate intentional and non-intentional plagiarism. Implement contractual documentations, if necessary.
- Ensure accommodation of learners needing special assistance and assistive technologies.

1.1.2.2.2 Roles of online teacher and learners

Roles of online teacher

Collins and Berge (1996) categorise the tasks and roles of the online teacher into four areas:

(1) Pedagogical

(2) Social

(3) Managerial

(4) Technical

They described pedagogical as function and task that revolves around educational facilitation. Social function is described as the promotion of friendly social environment, which is needed in the progress of online learning. Managerial aspects of online learning involves setting agenda, objectives, rules, and decision-making norms. The technical aspects focuses on the teachers' proficiency with the use of the technology. The teacher is an online course must ensure that they themselves are comfortable with using this technology to transfer knowledge to students.

Roles of online learner

A successful learner should be active in an online learning environment. The roles of the online learners include

(1) Knowledge generation

(2) Collaboration

(3) Progress management (Palloff & Pratt, 1998).

In online learning environment, the learner is responsible for actively seeking solutions to problems confined within the knowledge area being studies with guidance from the teacher. They are expected to view problems and questions presented by the teacher and those of other students. Students in the online learning environment are also expected to learn collaborately and cooperately (Khan, 1997). Students are expected to work together in order to

generate deeper levels of understanding of the course material. Students are also expected to share the resources and other materials that are findings with other learners. In the role of process management, students are expected tp participate with minimal guidelines, interact with one another and speak up when the discussion are moving into an unforgettable zone. Students must be willing to speak out when they are offended or simply have an opinion on somethings (Palloff& Pratt, 1998).

1.1.2.2.3 Online decorum

- The double strategy: We are used to taking things for granted. In most cases since we have the option to work from anywhere inside our home, we tend to take this privilege for granted and focus only on our comfort but seldom to the comfort of others. When we say comforts of others, it means the lighting, acoustics, signal strength, height of the furniture and so on. So we should follow a PP mantras, which stands for plan and practice. The process is simple but does require documentation. We should make a list of places that are the most comfortable in and make sure that we have everything we need during a call. Once this is done there is a need to test the network speed and assess if it's optional. Ensure that there are no windows in the background and we are not in a place that echoes our voice. To be 100 percent confident there is a need to have demo calls with someone in the family.

- The hardware: Although laptops are preferable during a call, there are times when people have to join using their phones. Irrespective of what we are using, it makes a world of differences when a wired earpiece with a microphone is used. When we are using our phone, always use it in portrait mode and ensure that the auto rotate is on, otherwise we will be seen sideways. When using phones either we should divert calls, use the same SIM for internet or use WiFi.

- Time: Not being on time is a thing of the past in online meetings. We can't give excuse like traffic. Make it a point to log in a 10 minutes in advance and keep everything we need ready. Even when the call is almost coming to an end, don't be very eager to log off. Wait for the person in charge to close the session.

- Interruptions: To say that we will never be interrupted is impossible. But there is a need to handle the interruptions like a boss. Ensure that we should mute our conversations in case someone interrupts us or appears on camera. If it happens unexpectedly, don't be nervous. Laugh it off.

- Difference indifference: Last but not the least, respect everyone online in front of others, irrespective of our differences on a personal level. What we don't usually understand is that we are ruining our own reputation by disrespecting others. Yarning or laughing at others in a forum only shows the lack of interest, level of seriousness and how we actually involved. Allow everyone to talk and be assertive in putting across our point.

1.1.2.3 Differences between Online and Face to Face Education

When choosing between online and traditional education, it can be helpful to consider factors such as learning styles, settings, and technology need. When students are considering choosing between online and traditional education, they may only think about the most obvious difference between computer versus classroom. There are many other differences that could significantly impact a student's ability to succeed. In this piece, we'll discuss several of these factors, including:

- Learning styles
- Classroom setting
- Technology
- Pacing

1.1.2.3.1 Learning styles

Typically, online learning tends to favour independent learning styles. Online students are expected to be self-directed in achieving their academic goals while balancing other responsibilities. Some courses also favour certain learning styles over others. For instance, those that rely primarily on visual content may favour visual learners. Others deliver material through recorded audio lectures, which can be helpful for auditory learners. Although there are still misconceptions that online courses are isolating, most online education programs have adopted active learning environments that incorporate

activities, peer-to-peer communication, and student-instructor interactions. This can helpful for individuals who learn better when working with others. Some communication options in online courses include:

- Email
- Message boards
- Instant messaging
- Video conferencing
- Chat rooms

Nevertheless, traditional courses often cater more specifically to students with collaborative learning styles, especially auditory and kinesthetic learners. Likewise, traditional learning environments offer opportunities for face-to-face interaction in and out of the classroom. Furthermore, at a brick-and-mortar school, social and academic support may come from peers on campus.

1.1.2.3.2 Classroom Setting

In a traditional course, multiple students gather to learn at a specific time and place. Students may attend lecture discussion sessions, independent study groups with peers, or interact with the instructor after class or during office hours. The style of instruction at traditional universities is most often teacher-driven, in that the knowledgeable instructor lectures on the subject of his or her expertise.

Some online courses actually follow the same model, with synchronous online class sessions and question-and-answer sessions that serve as instructor office hours. However, other online courses allow students the flexibility to choose the time and place to learn that is most convenient for them. The style of instruction in online programs is more user-driven. Depending on the course, students may experience varying levels of control over the pace of learning and when they attend the class.

1.1.2.3.3 Technological Concerns

To do well in online courses, students must have basic computer literacy. Likewise, teachers must understand how to incorporate these resources into lessons, and teachers must be able to provide instruction on how students can use the resources. In addition to the communications methods previously

discussed, some of the media that may be utilized in online courses include web pages, webinars, software programs, webcasts, search engines, and social media.

However, while traditional classes may take place in the classroom, students and faculty still require some technology skills for using document creation programs, conducting Internet-based research, and using other technology resources. Therefore, traditional classes will not save students or faculty from having to learn how to use and incorporate some technology into their education programs.

There are both similarities and differences between online and in-person educational programs. Prospective students can choose between them based on their personal preferences and learning styles.

1.1.2.3.4 Pacing

In a traditional on-campus setting, students must take courses on the semester, date and time they're offered. Since there's no physical location, online courses often offer more flexibility. This is true in two senses. One, many schools offer self-pacing where students absorb the material on their own time using resources provided by the college, giving them the flexibility to work around their busy work and life schedules. Other schools have a more traditional setup, 'conducting' online classes according to a set schedule, but offering them in different start times and lengths. For instance, students might choose a 12-week course or an accelerated 5.5-week course.

Table no.1: Difference between online and offline classroom

Offline classroom	Online classroom
It is teacher focused. Teacher is the central component of teaching learning process	It is learner focused. Learner is the central focus of the teaching learning process
Learning is more passive; there are fewer roles for learners in the instructional process	Learning is more active, and the role of the learners is more in the instructional process
Teacher concentrates on delivering knowledge and subject content	Teacher helps in construction of knowledge
Instructional strategy is verbal oriented and is based on traditional methods of teaching	Less focus on verbal instruction. Instructional strategies make use of different styles and methods of teaching

Multimedia may be used, but delivery of instruction is mainly verbal	Multimedia are used in a variety of ways
Student interaction with technology is less	Students interaction with technology is more
Focus on face to face interaction between teacher and learners	Opportunity of face to face interaction between teacher and learners is less
Less chance for motivation and self-learning	It gives learners chances for self-learning and motivation
More use of traditional style of teaching	Makes use of the innovative techniques of instruction
Use of technological instruments is less	Use of technological instruments is more
Opportunity of interaction between students and teacher is limited	Opportunity of interaction between teacher and student is more
Duration and period of study is fixed	Duration and period of study is not fixed
Rigid in character	Flexible in nature

1.2 Rationale of the study

Education is the process of facilitating learning or the acquisition of knowledge, skills, values, morals, beliefs and habits and for the purpose of getting the education students go to the schools. Educational institutional especially schools are based on traditional face to face lectures in a classroom. The sudden outbreak of deadly disease called Covid 19 caused by a corona virus (SARS- COV-2) challenged the educational system across the world and forced the educator to shift to an online mode of learning. So there is a need to see that is there any difference between the impact of online mode on the achievement of the students over face to face mode. The findings of the previous studies were not sufficient enough to conclude that which mode of learning is most effective. And my study will adds knowledge to the existing knowledge. If the study show a positive impact of online mode on the achievements of the students and if maximum research relating to it supports then may be we will shifts to online mode of school education or may build online schools otherwise may continue with the traditional one.

1.3 Statement of the problem

A Comparative Study of Achievement in Science of class 8th students of Kendriya Vidyalaya no 1 Bhubaneswar through Online and Face to Face mode of learning.

1.4 Objective of the study

- To find out the difference between the academic achievements in science of class 8th students taught by online mode and face to face mode.

1.5 Hypothesis of the study

- There is no significant difference in academic achievements in science of class 8th students taught by online mode and face to face mode.

1.6 Operational definition

1.6.1 Online learning

Online learning is defined as education in which a learner learns in an educational program, through student controlled internet delivery of content and instruction. Online learning further breaks down into 2 major subcategories: formal online learning, where the educational programme is structured & accredited and informal online learning, where the educational program is unstructured.

1.6.2 Face to Face learning

Historically, learning has been delivered directly from an instructor to a learner on a basis that is quite literally face to face. The term face to face learning is sometimes refers to as the brick & mortar or the traditional learning model. Face to face include two major subcategories: traditional face to face learning, where content is delivered or led by the instructor & technology rich face to face learning, where the instructor uses or manage technology to enhance or argument content delivery.

1.6.3 Achievement

Achievement is the extent to which a student, teacher, institution has obtained their short or long-term educational goal.

1.7 Delimitations of the study

The present study has been undertaken to find out the effects of online science teaching where the focus is on the academic achievement of the upper primary learners. Due to certain factors the study suffers from certain limitations out of which the majors are listed below –

- The first delimitation was found in the case of population. The researcher had taken the class 8C and class 8D of K.V no1 Bhubaneswar.

- The second delimitation was done in the category of the sample. Only 15 learners from class 8C and 15 learners from class 8D were included in the sample. Thus, the total number of learners was 30.

- In selecting learners for the present study the criteria that have considered maintaining homogeneity was simple random sampling.

- The third delimitation was done in the category of the mode of learning the study confined to 2 modes of teaching and learning –
    - i) Online mode
    - ii) Face to face mode