

CHAPTER -1

INTRODUCTION

The educational sector of India has undergone various modifications in the present scenario to meet the demands of present-day needs of local as well as at global level. Our Honorable Prime Minister Sh. Narendra Modi's slogans like '*Shikshit Bharat*', '*Unnat Bharat*', '*Padega India tau Badega India*' have given a boost to the Digital India campaign across the country. Higher education institutions have taken steps to promote access, equity, and quality education in the years to come. To further support this, a glance of framed National Policy on Education 1986 and modified 1992 has been consulted. As a result of this, an urgent need was felt to amend the several pointed out changes and bring out a Draft for the revision of the Policy. After taking over 2.75 lakh direct initiation of consultations and inputs from citizens were taken online.

1.1. Emergence of Technology In Education

A time-bound grass-root level consultative process has enabled the Ministry of Human Resource Development. A large number of individuals across the country were approached for making education, innovation and technology-enabled, to achieve its successful implementation. To meet the changing needs of the time required by the population of India, the students need to be equipped with basic skills in a charged classroom environment for achieving the best Academic Score. That is why very eagerly researches are going on in this field to bring out fruitful results for the learners- centric approach to achieve this aim of making India

a Digital India. For this trained, technologically skilled teachers are a need of the hour. But we are presently facing the problem of the availability of such skilled and technologically oriented teachers. So future education is in crying need of an altogether transformed model that suits the present demand and supply chain of employability.

Many major changes have taken place in the world of education over the past two decades. Educational technology has grown to be a very important and valuable field of study. It focuses on the implications related to the teaching-learning system's efficiency and effectiveness. Technology in Education and Technology of Education are two subtle facets of educational technology. But it is neither the technology in education nor the technology of education, but its all-pervasive influence that affects the entire teaching-learning process. When it comes to its several aspects, the use of educational technology as a medium of instructional technology can be traced back to the advent of very early means and modes, such as cave paintings. An example of mythology seems relevant here to support the genesis of the technology. According to which our gurus or teachers have been teaching their followers for decades. It dates back to the teaching-learning process in the context of ancient times. If we refer to the ancient teaching methodology practiced in gurukuls, the relationship of Lord Rama's with his teacher Vashistha formed the basis of formal education in his Ashram. These perspectives represent the theoretical phase of learning. Lord Rama grasped the knowledge of Vedas and Puranas. He learned the basic principles of life, the duties of the kings, and the values he should live by, much like the education imparted in present-day educational institutions. On the other hand, Guru Vishwamitra imparted practical knowledge to Lord Rama. He guided Lord Rama

and his brother Laxman to accompany him to fight demons causing hurdles in the yajnas, This way both the brothers used their knowledge in real scenarios, later on, Lord Rama learned the mantras used to call divine weapons and faced real-life challenges.

Most histories begin with an educational film from the 1900s or Sidney Pressey's mechanical teaching machines since 1920. Two main designs from the 1950s are still common today. In the next era, considering the formulation of behavioral goals of instruction Skinners' work resulted in "programmed teaching". This resulted in the division of instructional material into small units, and the early and frequent rewarding process comes after accurate responses. Further, according to Bloom's Taxonomy, stress was laid upon those instructional methods which varied in terms of instructions as well as time in accordance with learner's requirements. Further, during the 1980s and 1990s, a number of schools came to existence, using widely computer-dominated teaching methods in the first place.

The next phase begins with ICT-based instruction involving the use of the Internet and the WorldWideWeb for knowledge access. For the development in the social, cultural, and political arenas revolutionary changes resulted, in the increased use of ICT-based instructions. In this regard, the Web, or Web1.0, has largely been a one-way platform with the sole purpose of searching for information for knowledge's sake. The term Web1.0 was merely a manifestation of the manner through which information was passed on. When we moved closer to being an information society, it was realized that problems such as access and fairness needed to be discussed, and relevant knowledge required to be dealt with, for political and economic survival. That is why, handling of the information, its protection, and

management of web 1.0 went through a major transformation. In its transition from physical sharing to electronic to interactive, several options were dealt with. The availability of information via the Internet has now crossed a threshold to a considerable extent. It can be understood from a few examples, where it is in its second phase.

The use of the term "Web2.0" is bold, in contrast to its previous form, i.e. Web1.0. The latter form has been just a matter of looking for facts. The Platform 2.0 ambiance encourages people to contribute, change, and build knowledge. Web 2.0 is a new way for people to express themselves like a social phenomenon that brings people together. It also separates people from each other, but it is the one who creates and contributes the contents to the website. It also offers transparency in terms of not being locked. The n-generation is a group of people who grew up in the digital age therefore known as digital natives... The word Internet 2.0 groups describes a community of people who use social media for the purpose of socialization. The students and educationists also use Internet 2.0 groups in the field of higher education. The culture of participation, empowerment, and collaboration is on the rise in all spheres of technology-based platforms. Web 2.0 is a term that refers to new innovation. It's assumed as a higher degree of contact as well as a richer and has brought a more satisfying user experience. This is what Web 2.0 is all about.

Concept of eLearning

Understanding eLearning is simple. E-Learning is learning utilizing electronic technologies to access the educational curriculum outside of a traditional

classroom. In most cases, it refers to a course, program or degree delivered completely.

One of the approaches to e-Learning is offline learning which is sometimes-described as a proactive type of learning that can work forward on evaluating the static data sets that it has at its disposal.

Online learning is yet another approach of learning where the key element is the use of the internet. Online learning refers to the idea of using online tools for learning. Some examples of universities that provide exclusive online programs are:

- London School of Planning and Management
- London School of International Business
- The Open University, UK
- Nottingham Trent University Online

Apart from this, synchronous e-learning involves online studies through chat and videoconferencing. This kind of learning tool is real-time. It is like a virtual classroom that allows students to ask, and teachers to answer questions instantly, through instant messaging, which is why it is called synchronization.

Emerging Trends in e-Learning

Use of Web 2.0 Tools for Learning

e-learning 2.0 refers to learning in an internet framework. For example, the content generated through Weblinks like Wikipedia, social networks, and

communities. It offers to learn through a genuinely portable and owned identity Network of interactions. It involves functions like aggregate, remix, repurpose, feed-forward and syndication. The personal learning center (Downes, (2007).

Social Networking Sites

Our kids depend too much on social media these days. One important way to make learning relevant to provide suitable content to them. They should be made familiar with social media sites that can facilitate their learning in the classroom. Social media serves the purpose of learning the subjects like language arts and social studies. The tech-savvy teachers can better utilize collaborative learning in any classroom through the use of social networking sites. Not all social media sites serve this purpose. Everyone is not making appropriate use of these sites. There is every possible chance that the students get distracted while using Facebook or Twitter.

Social Media Sites for Students and Teachers

Twiducate

It is described as a safe site for teachers and students to collaborate. It is easily available and allows teachers to create a class community online using a class code rather than an email address.

Tween Tribune

It is a site that helps the kids in finding material on current events. The students develop the news habit and get a chance to comment on the day's events.

Blackboard

It is an industry leader in course management systems online. The decision to use Blackboard is usually made at the district level, though occasionally by individual schools. Blackboard is incredibly powerful, safe, and comprehensive.

EDU 2.0.

This e-Mode of teaching involves integrating course management systems like Blackboard, without the cost. EDU 2.0 works by offering all its premium features.

Wikispaces Classroom.

It is also a kind of tool for promoting teacher-taught collaboration. Wiki Classroom proves that it is not an exception. Wiki Classrooms are private social networks replete with news feeds and communication tools. It is safe because you decide who's invited – students, parents, or an administrator. It can assign, collaborate on, discuss and assess projects all within the site. It can even handle multimedia. The best part is that Wikispaces Classroom is free.

Edmodo.

Here's another excellent, free classroom management system. It includes news feeds, assessment tools, communication capabilities, and security features.

Skype

It is one of the virtual platforms which teachers can use effectively. It can function like Vidyamitra globally by bringing the outside world right into your

classroom. You can host authors, visit science labs or talk to pen pals from across the world.

MinecraftEdu

The secret of MinecraftEdu is its ability to harness the power of video games to engage learners. This game allows students to collaborate, explore and solve problems while learning about History, Economics, Science, and Maths. The teachers can incorporate it into their curriculum.

Sumdog

This gaming site is a type of flashcard on steroids. It can engage the kids at the level of Elementary school. The social aspect of gaming is the ability to add friends to their accounts. Kids will run from home to school to play online. It triggers their cognitive level with fun-filled activities through gaming.

Twitter

It is one of the most popular platforms, despite an aversion among teachers. However, its popularity can be judged by its ranking. It is widely used by the students making it to the top ten.

Social Media as a Tool to Develop Students' Voices

One of the major benefits of using social media with students is teaching them to communicate openly, honestly, and, above all, kindly with their peers. Therefore, it is imperative to use this teachable moment to promote compassionate communication.

Blogs

A blog is a truncated form of a weblog. It is a discussion or informational website published on the world wide web. It consists of discrete, often informal diary-style text entries popularly known as posts. These are typically displayed in reverse chronological order. The most recent post appears first, at the top of the web page. The blogs can be of two types i.e. single-authored or multi-authored. MABs from newspapers, other media outlets, universities, think tanks, advocacy groups, and similar institutions account for an increasing quantity of blog traffic. These blogging sites are integrated into the news media. In education, blogs can be used as instructional resources. These blogs are referred to as Edublogs. Microblogging is another type of blogging, featuring very short posts. According to the critics and other bloggers, it is the most popular interactive media used today.

Chat

Chatting gives a feeling similar to a spoken conversation is created. It is different from other text-based online communications. Online chat may address point-to-point communications as well as multicast communications from one sender to many receivers and voice and video chat or maybe a feature of a web conferencing service.

Video Conferencing

A video conference is live communication through visual connection. It often involves two or more people residing in separate locations. It provides transmission of static images and text between two locations. It also involves the

transmission of full-motion video images and high-quality audio between multiple locations.

Discussion Forum

A discussion board is known also by various, other names such as discussion group, discussion forum, message board, and online forum. Generally, it is a term used for any online bulletin board where interaction can take place through the exchange of messages. Even the board can just simply be read.

Open Education Resources

The open mode of education promotes collaboration. According to the Open Education Consortium, education thrives upon the virtue of sharing. Education is an exchange of knowledge, insights, and information with others. It builds up new knowledge, skills, ideas, and understanding. Open educational resources (OERs) are learning materials that can be modified and enhanced. Their creators permit others to do so. The individuals or organizations that create OERs include materials like presentation slides, podcasts, syllabi, images, lesson plans, lecture videos, maps, worksheets, and even entire textbooks. There is no issue related to the copyright associated with their work. Legal tools like Creative Commons licenses, allow others to freely access, reuse, translate and modify them.

MOOCs

Massive open online courses (MOOCs) are courses accessible to anyone with a computer and access to the Internet. People call these courses "massive" because their enrollment is open to more students than traditional educational

institutions might permit. Hundreds, even thousands of students might participate in a particular MOOC. Today, many colleges and universities have joined organizations committed to providing high-quality education through MOOCs.

One example is edX, a non-profit education partnership that in 2012. It grew from a collaboration between MIT and Harvard Stanford joined the effort in 2013. Now several dozen colleges and universities from around the world provide such kind of platform resembling MOOCs. In 2013, edX released the source code for its online learning platform. The programmers could download the source code and help in improving it. Others could even use it to build their educational platforms. Similar online educational ventures include Khan Academy and Coursera. Many MOOCs license their course materials for remixing and reusing.

Digitized communication and networking played a vital role in the development of digital platforms like the world wide web, e-mail, and various types of virtual modes. In addition to this, sustenance of learning communities and knowledge management tasks were carried out by digital tools especially in the field of education. These digital tools proved to help enhance student's learning and curriculum management. The teaching through distance mode became very effective by employing these latest learning technologies. Not only this, but the enrichment of the classroom environment also employed these technologies effectively. This inspired the quality teachers to use e-tutoring increasingly. The various digital Forums include instant messaging and video conferencing. This also reduced the dependence of teachers merely on paper, videos, and CBT or CBL materials. Another trend that showed hybrid designs that showed the mixing of distance mode activities by using different teaching styles. The appearance of mobile technologies

on the scene brought many unique means of communication along with this. This gave a new impulse to teaching-learning strategies. The concept of integrated learning describes the birth of hybrid blended learning which uses both classrooms as well as, class settings. Technology has transformed the learning experiences. Now, the students have quick access to an incredible amount of new opportunities. Hence a new way of using technology in the classroom is suggested that is a flipped classroom.

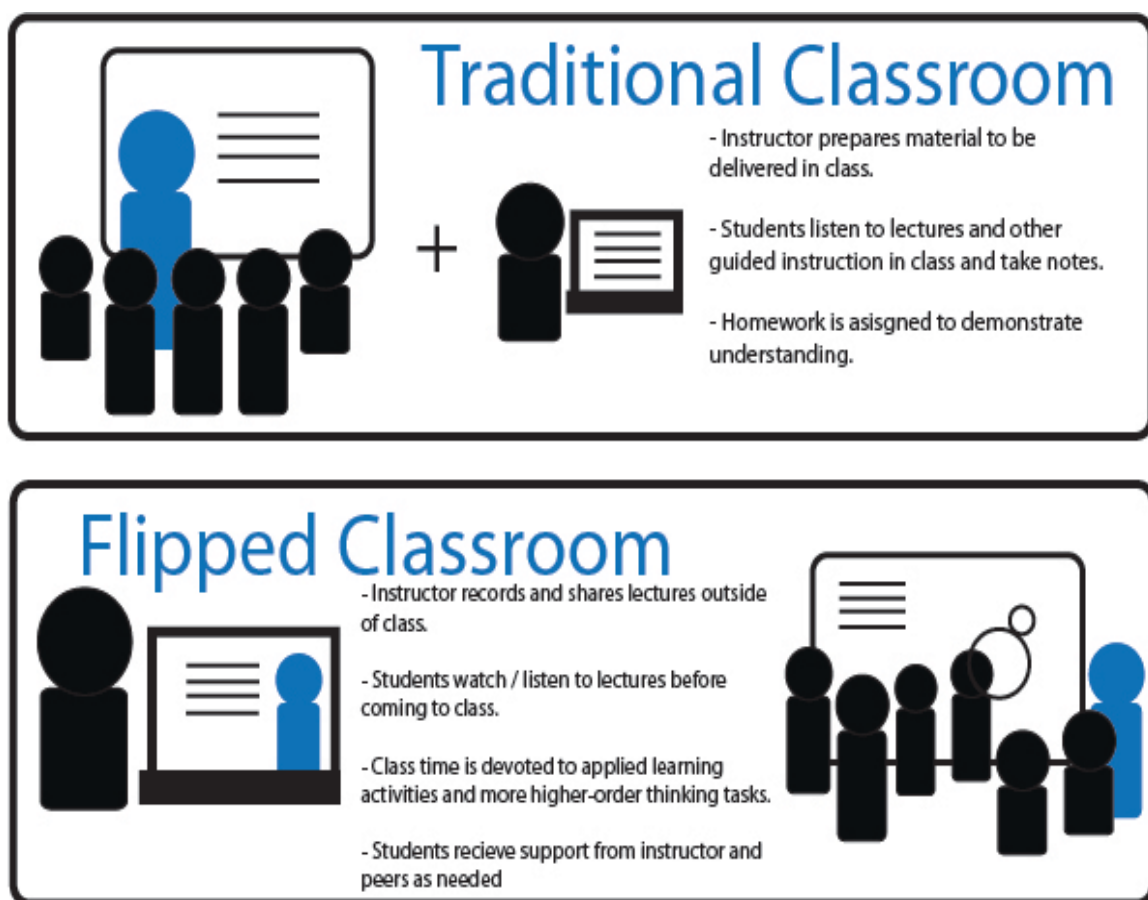


Figure: Concept of Flipped Classroom

Source:https://www.google.com/search?q=pictures+of+flipped+classroom+vs+traditional+class&rlz=1C1CHBF_enIN922IN922&sxsrf=ALeKk02ChlnSd

1.2. Conceptual Frame Work Of Flipped Classroom

Flip a coin and the success rate of the preferred outcome is 50:50 and flip the classroom, the success rate of learning is likely to be much higher. In 1984, Kolb stated that “Learning is not a single process, it involves active and passive”. He also elaborated that effective learning happens through the process of Experiential Learning, whereby knowledge is created through the transformation of experience. The teacher plays the role of a facilitator in the Flipped Classroom environment. Either a video lecture or reading material is provided by the teacher to the learners before active teaching takes place. The concept of Experiential Learning comes to the force by replacing teaching in the classroom environment. The benefit of using this method is that the class time is used for assimilating the knowledge and developing higher-order thinking like application, analysis, synthesis, and evaluation. It involves empowering the students and encouraging them to self-initiate their learning. To achieve success in the flipped classroom methodology, the teacher must engage the learners in meaningful learning. The homework is given in the form of Q and A assignments, projects, etc. It is being the part of part higher-order thinking that leads to better learning. The teacher-student relation is enhanced in a way that the teacher takes up the homework as a facilitator.

1.3. Historical Background

The History of flipped classrooms dates back to the year 2012 with two Chemistry teachers namely Jonathan Bergmann and Aaron Sams, teaching in Woodland Park, Colorado. They wanted to help those students who had missed their classes due to one or another reason. Such students lagged in coping up with their

school work. Both the teachers thought of an effective solution to this problem. An idea struck them that if a series of videos of their lectures be created, the absent students could watch them at home. To their surprise, the regular students of Woodland Park started watching the videos for more clarification. It also helped them in doing their homework. Aaron Sams thought that these videos can be given to the students regularly. This exercise was done before teaching the course content in the routine classroom. It proved to be a very effective tool for increasing students' engagement in the whole class. This experiment was so successful that not only it ensured understanding, but the traditional model of teaching became altogether "flipped". As a result, teaching became very effective and less time-consuming. At the same time learning became long-lasting. Now, both these Chemistry teachers further implemented this innovative idea of flipping classroom teaching by producing video lectures for the next session. They aimed to provide this teaching material before going to the classroom, thereby utilizing the classroom time for knowledge enrichment. Besides this practice, they adopted the techniques of problem-solving, discussion, or debates for grasping the knowledge. The process of the effort of imparting in-depth knowledge is aimed at learner-centric methodology. Leading classroom time to explore the topic in greater depth and creating richer learning opportunities".

Here the fact is established that, from the experience of Bergmann And Sam, it is proved that a flipped classroom model is result-oriented. Let us take the example of Michael Treglia Maureen Lage and Glenn Platt who underwent the same kind of process and experienced the same kind of flipping during their economics class. At the time of using the flipped classroom, the capacity of an

individual learner should be kept in mind. Otherwise, too much information can interfere with the learning outcome. So teachers can use classroom time to keep in mind the memory for integration of new information. Students gain a better understanding of the subject through adopting various techniques. These techniques involve skill development, presentations, problem-solving can ensure an in-depth grasping of the subject matter. The teachers can pay individual attention to a student in general as well as at the level of a group in particular. Now the teachers are in a position to better understand how the students think.

The teachers and students both need to understand that to make the flipped classroom model successful, a huge amount of effort would be required. For centuries the lecture method has dominated the classroom in India. One of the biggest challenges is for the faculty to pick up this methodology as a part of their pedagogy. To conduct an experiential session in the classroom, the following steps could be used by the teacher

Step 1- Concept: The concept is taught through video lectures or reading material before the class.

Step 2- Objectives: The main objective of a teacher is to help in reinforcing the concept rather than just introducing the concept. Being the facilitator, objectives such as teamwork, communication skills, decision making, etc. could be introduced.

Step 3- Teaching Pedagogy: Based on the knowledge acquired through pre-class video lectures or reading, the teacher is required to use experiential learning strategies like case method, project, assignment, role play, etc. where the learners could apply the knowledge.

Step 4- Applying VAK Along with the pedagogy, the teacher must also plan to introduce VAK learning styles. VAK stands for

V- Visual, seen, or observed things including games, pictures, diagrams, demonstrations, displays, flip charts.

A- Aural, the information is received through a hearing wherein spoken world of self or others of sounds or noises is to be introduced in the class.

K- Kinesthetic- This means physical experience, i.e. touch, feel, hold, practical hands-on experiences.

The VAK learning styles enhance the classroom experience of the students, The teachers need to be creative while planning teaching material in the classroom. Here it is not always required to include all three, but learning dynamics are generally directly proportional to the various activities in the class. VAK allows the use of material resources such as flip charts, colored pens, videos, pictures, etc, which creates interest in the learners. The classroom work is done in pairs or teams requires Bi or multi-directional communication, thus encouraging the learners to absorb information as per their pace.

The concept of the flipped learning offers an engaging learning environment. This allows teachers to use this new technology for involving students more creatively in their learning process by utilizing the constructive approach of learning (Gerstein, 2012). Student-centric teaching is aimed at thus forming the base of effective learning. This method is appropriate for making the learning based on input by receiving the knowledge of the surroundings. The process of learning is made experiential by the creation of knowledge. The individuals tried to make sense

out of their experiential world. In this flipped classroom the faculty could select any of the innovative methods to aid experiential learning from the following list:

- Guided discussions
- Demonstrations
- Brainstorming
- Games
- Activities
- Fishbowl
- Case method
- Video analysis
- Simulations
- Projects
- Assignments
- Case study
- Roleplay

No denying the fact, that it was overwhelming support for the flipped model of the classroom was received at the end of the students and teachers. In flipped classes, nearly 80% of students shared their experiences with peers and teachers during class time, which was founded more positive as compared to their earlier learning outcome in their classes. Collaborative learning with other students played

a vital role in the flipped course. The students were also able to use classroom time to think critically and solve problems. It also facilitates them to learn in their own space. The students learned more actively. The positive interactions among the students took place. This further leads students to think critically and grasp the study material in an individualized manner.

The concept has been accepted and introduced by many countries, but its feasibility in the Indian scenario is debatable. Indeed, it can easily be implemented in metros and in private institutions where technology is available. But the masses will not benefit from the innovation. Hence, if policies like Digital India are emphasized, this kind of digitization can see the light of the day. This would also ensure that the “Education for all” Mission will be accomplished. The innovation would assist the new generation to become technology-friendly.

Therefore, students are encouraged to construct their understandings and test these new insights through technology-enabled social interactions. It becomes pertinent to procure information from different sources as the content is not pre-conceived for delivery. The real hands-on experience proves to be an effective strategy involving task-based activities. Therefore, the constructivists employ performance of multiple cognitive learning which aims at collaboration, sharing of different views, brainstorming, thinking out of the box, as well as socialization. This process includes debate, discussion, evidence giving, and the use of examples. The constructivist keep in view some of the basic assumptions that are directly relevant to the instructions. These are as follows: A focus on identifying the context in which skills will be learned and then implemented. It further emphasizes the learner's ability to utilize knowledge for achieving the learning outcome. There is a need for

material to be interpreted in a variety of formats. That is why, the content is revised at various times, in rearranged forms, from various conceptual perspectives. The learners are encouraged to use problem-solving skills that allow them to go beyond the knowledge provided. As a result, the pattern of recognition skills is developed and alternative ways of representing problems are effectively presented. As the student's trust and knowledge grew, he or she would progress to a collaborative learning process in which peer interaction appeared to be very important. Students better articulate their needs and evaluation process by interacting with others, including peers, advanced students, teachers, and instructional designers.

The ADDIE model involves five phases. namely, Analysis, Design, Development, Implementation, and Evaluation. The ADDIE Model being an effective instructional model supports especially the instructional part of flipped pedagogy. In the first phase, it is analyzed as to what type of instruction is to be prepared. It involves instructional targets and performance indicators as well as learning goals. Consequently, in the second phase of the ADDIE Model, the key elements like instructional media assets are designed. In the fourth phase, the material and learning experiences outlined in the design phase are further developed by instructional designers. The content is developed into graphics. Its audio form, as well as photography, is collected and produced from different sources. The content is uploaded to the LMS for delivery by the trainers, facilitators, and teachers who receive training from the instructional designer during the implementation phase. During this phase, it is the instructional designer to decide about the targeted performance to be achieved.

In the last phase, i.e. the evaluation, the performance plays a significant role during the assessment process of the ADDIE Model. The evaluation is divided into two parts: formative and summative. The formative assessment occurs in the design and developmental phases. This happens all the time during the ADDIE model... After the instructional materials have been delivered, summative assessment consists of overall assessments of the content. The outcomes of these evaluations assist the instructional designer and stakeholders in assessing whether or not the training met the objectives set out in the review process.

Another approach of instructional design referred here for the flipping classroom is known as a structured approach. Robert Gagne and his followers are popularly known as practitioners of behavioral outcomes based upon this training. Gagne studies the mental conditions for learning in his book titled *The Conditions of Learning*. He studies the conditions of learning through a nine-step mechanism, known as the events of teaching. It is now widely acknowledged that advances in information and communication technology (ICT) have significantly altered the teaching-learning process at both the secondary and postsecondary levels. ICT has affected not just the instructional structure, but also the assessment and evaluation system. Several groundbreaking projects in the area of examination and evaluation have been practiced in recent years. Online evaluation has become a common daily practice worldwide. The most common applications of ICT are widely in use at the individual as well as at the level of organizations. For example, online, booking, admissions, examinations, and multifaceted technology-enabled services. ICT is concerned with storing, retrieving, manipulating, transmitting, or receiving

information electronically in a digital format. It's also important to consider how well these various uses will fit together in terms of their usage.

Students in a flipped classroom have the ability to study the material before coming to class. This allows students to learn at home at the lower levels of “Bloom's Taxonomy”, such as recalling and recognizing the material by reading lecture notes or watching videos. The students can participate in activities based on skills either alone or in collaboration. In this way, they can enhance their knowledge as well as skills. They can adopt new knowledge by implementing, assessing, testing, based on Bloom's Taxonomy, thereby achieving higher levels. Classroom teaching in the conventional approach focuses on lower cognitive levels, such as recalling, comprehension, and, to some degree, reasoning, application. If these cognitive levels involve very little student participation, the learning tends to get passive. The higher cognitive levels, such as analysis, evaluation, and creativity can lead to active learning and develop higher-order thinking.

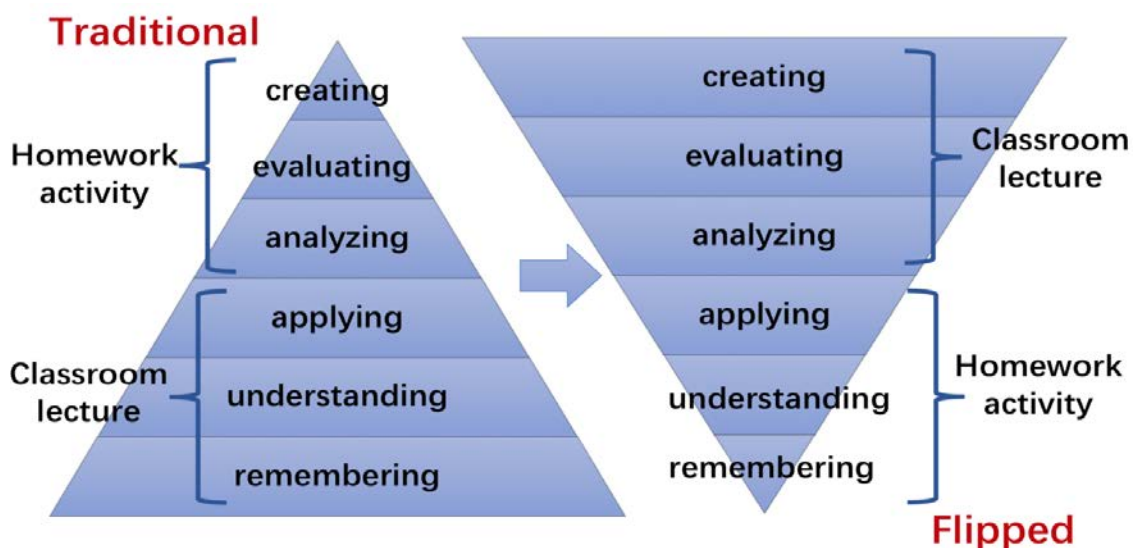


Figure: **Role of Flipped Classroom in Effective Learning Skills**

Source: http://discuss.cle.ust.hk/mediawiki/images/3/3f/New_explanation_of_flipped_taxonomy.png

The students acquire desired knowledge from a teacher, playing the role of a facilitator to make learning effective, in a flipped classroom. When the teacher substitutes his role as a guide, the students learn to individually experience the guidance given to them. Here a clear shift from the traditional classroom to flipped classroom takes place. This can be further emphasized illustrated by an example of the teacher working with his students on one to one basis thus giving personalized attention.

1.4. Legal and Ethical Ways to Deal with e-Learning:

There are many laws related to issues of e-Learning as far as the flipping classroom is concerned. They should be kept in mind while producing videos before passing them on to the learners. The course content material used for this purpose should be taken from authentic sources, in accordance with the rules and regulations as per law. Academic fraud has been promoted due to ignorance while applying the e-Learning resources to modify the achievements of traditional learning through the e-Learning process itself. It becomes imperative for our e-Learning institutions to frame guidelines to discuss e-learning ethics. Firstly, a consistent concept of academic fraud in the e-Learning environment should be created and published. Secondly, a policy outlining a basic academic, moral code for students should be followed. Thirdly, the ethical concerns related to technology and e-Learning into the curriculum should be integrated.

Academic fraud involves an intentional overlooking of cybersecurity. This leads to ignorance of cyber laws with serious ethical consequences. In order to prevent “soft-lifting”, duplication and copyright policies should be strongly

implemented to prevent misuse of electronic sources. The need to incorporate computer software ethics was also felt. It becomes the need of the hour to include software licensing and limited warranty agreements, including the terminology of software ethics. It becomes the duty of the e-teacher to aware the e-learners aware of ethics involved in the use of internet resources. If such ethical parameters are taken care of at its initial stages. A flipped classroom can be utilized for the following benefits:

1. **Student-controlled learning:** Students learn at their own pace, maintaining the balance between their grasping and retention of new knowledge.
2. **Student centeredness:** It encourages teamwork and peer group learning by promoting student-centric teaching.
3. **Content Accessibility:** The technology has made it easier for self-learners to access the e-Content available on digital platforms.
4. **More efficient:** Flipped classrooms consume just ten minutes of online lecture. It establishes the fact that the classroom environment becomes an efficient mode of content transfer. This offers more availability of time to spend with friends, families, and recreational activities out of the classroom.
5. **Multiple ways of knowledge acquiring:** As the instructions are not restricted to classroom teaching, the teacher can use different types of content like animation, simulations, informative websites, blogs, etc.

6. **Effective Feedback:** As the students go through the instructional material and compile their queries in advance, the class time is optimally used to give effective feedback.

1.5. Despite tangible benefits, the flipped classroom may have the following challenges:

1. **A digital divide will promote societal differences:** One of the most challenging problems is that the students from low-income groups can't have access to a computer and the internet in order to attend lectures. This is especially an embarrassing situation for students from a low-income backgrounds.
2. **It requires planning and confidence:** Flipped classrooms rely on student engagement, so it is necessary to trust them for watching lectures at home. Unfortunately, there is no way to ensure that the successful engagement of students will take place in the flipped classroom.
3. **An extra effort and increased workload on teachers:** There is also a concern that implementing a flipped classroom increases the teachers' workload. There is a dire need for content check and the use of authentic resources. It will largely take on their time. The recording and uploading of educational video lectures require a lot of time and skill. Various activities in the classroom improve the subject matter and inspire the students to participate. With the passage of time, the teachers can integrate their flipped classrooms with traditional classrooms, bearing the responsibilities of devoting extra time and effort on their part.

4. **Health hazards and poor concentration due to increased screen time**

spent: The students will come across serious health problems due to watching the video lectures for over a long period of time. This is also observed that flipped classroom can interfere with the student's natural learning process. They are immature enough to get used to, make wise use of computer-based learning. Therefore, too much flipping the classroom has also far-reaching consequences related to concentration problems among students.

1.6. Opportunities for Flipped Classroom:

India is a diverse country with varied demographic locations and a huge divide in the economic scenario, some students still cannot access this technology; also power cuts are a major issue. Language is an obstruction and resources for smooth functioning are also a barrier. In this context, the specific objective of this study was to examine the potential impacts of the flipped classroom to engage the experiences and perspectives of teachers using the flip method of teaching. To hear from them what impacts they have observed in the students' learning, with the goal towards informing teachers' practice. It has been conceptualized that student learning in this study has a teacher's perception of student engagement, student self-regulation of learning, and student understanding of curriculum content is the most urgent part of learning. At the same time, some of the concerns underscored in the literature, including digital equity, the continued prevalence of didactic teaching, and concerns about the lack of differentiation identified by the participating teachers who practiced flipped the classroom enabled academic achievement.

Through this study, a fantastic way to ensure one-on-one teacher-student conversations was to allow students to control self-paced learning by watching video lectures. Overall, the impact of the teaching through to flip method suggested that students are more eager to give a response to this innovative learning. They can be self-regulated towards their academic achievements. They are more motivated to participate in classroom activities when they have a good grasp of the curriculum content. Fortunately, technology has the power to change teaching methods dramatically. Students would enjoy gaining confidence with the enhancement of learning outcomes.

1.2.1. The emergence of Metacognition in Education

According to Oxford Advanced Learners' Dictionary, the term 'meta' means 'beyond'. In the words of Aristotle, 'Metaphysics' is the book that comes after Physics. Accordingly, therefore, metacognition is simply a cognition that comes after, and so is presumably related to, a prior cognition. It is necessary to consider what cognition is, before moving on to the metacognition of B.ED. students. According to the Merriam-Webster dictionary, the term cognition is defined as "mental processes". It can be illustrated from the example, "If the common ancestor of the human and the chimpanzee used its big brain to develop a deep sense of death, then the human notion of life may exist at some level of our cognition that simply does not unlock with sciences' key." According to Zimmer, death can't be understood, "like Darwin's theory of evolution" but, "it has its origins in ancient intuitions". In this way, teachers can help students identify their current learning strategies using a variety of data collection methods such as surveys, group discussions, diaries, think-aloud procedures, and so forth.

1.2.2. Definition of Metacognition:

American psychologist, John H. Flavell invented the term 'metacognition' for the first time in the 1970s. Hence he was known as the father of Metacognition. It is based on the term 'metamemory' which was earlier considered by him only. (Flavell, 1979). It was viewed by Flavell that 'metacognition' is a learner's awareness about his knowledge of his own cognition process (p. 906). In the literature, metacognition is sometimes referred to as "thinking about one's thinking" or "cognition about cognition." "The knowledge and control of children affect their thinking and learning qualities" (Cross & Paris, 1988, p. 131) "Awareness and management of one's thought" (Kuhn & Dean, 2004, p.270) "The monitoring and control of thought" (Martinez 2006, p. 696) "Awareness of one's thinking, awareness of the content of one's conception, an active monitoring of one's cognitive process, an attempt to regulate one's cognitive process in relationship to further learning and an application of a set of heuristic as an effective device for helping people organizing their methods of attack on problems in general." (Hennessey, 1999, p. 3)

1.2.3. Relationship of Metacognition and Cognition

Metacognition is generally associated with a learner's perception, power, and understanding of his learning process. The metacognition learner is thought to be distinguished by the ability to remember, analyse, and where appropriately he can recreate existing ideas. In the year 1987, Flavell suggested a taxonomic categorization of the components of metacognition in an effort to explain some of the ambiguity about what metacognition means. He made a distinction about the portion of one's awareness that corresponds to cognitive matters, which is referred to

as "metacognitive knowledge" between a) metacognitive awareness and b) metacognitive experience when doing so. It consists of knowledge about person variables (knowledge of what humans are like as cognitive organisms), task variables knowledge of how specific information encountered effects and constraints. How one deals with planning, monitoring, awareness, task orientation, testing, evaluation, and reflection. The strategy variables include knowledge of how one deals with specific information encountered. It also includes knowledge about cognitive strategies or procedures for achieving various goals. On the other hand, 'metacognition experiences' are conscious experiences. Such experiences may be cognitive or affective and are linked to a current cognitive condition or effort.

1.2.4. Metacognition in Historical Context

The term introspection can be studied as the pre-metacognition phase. In the early 19th and 20th centuries, according to psychologists, it referred to a method for exploring the inner workings of the mind. The metacognition processes, in this phase of introspection, were of interest to them. Later on, it was found that the concept of introspection could not satisfy the purpose of the psychologists. It was due to the reason that introspection could not generate mirror images in mind. Watson outright disapproved of the idea of introspection as well as the study of the conscious mind related to the field of psychology. So, he introduced the concept of behaviorism in place of memory and Mentalism. Metacognitive mechanisms are, used in even the earliest models of cognition. Later, in the 1960s and early 1970s, metacognition became the subject of systematic research. In the late 1970s, John Flavell formulated that the metacognition process played an important role in child development in particular and human behavior in general.

Flavell's Theory of Metacognition

John Flavell wrote a book titled, *Developmental Psychology of Jean Piaget* (Flavell, 1963). He mainly focused on the notion of Intentionality to support his theory of Metacognition. It got opposed by many researchers. According to Flavell "intentionality" is a goal-oriented activity. It includes planning and implementation of a number of tasks. In (1971) Flavell coined the term metamemory. It refers to a person's capability to monitor his own memory. Flavell continued with research in the field of metamemory. It took more than 30 years to promote metacognitive research. He strongly believed that metacognition is an intentional and goal-oriented notion. His statements raised controversy in the field of educational research. It was opposed by Rider and Schunn (1996). They opinionated that Metacognition is not a part of an individual's consciousness.

Flavell used the term Metacognition in 1976 in the title of his research paper for the first time. He defined metacognition as follows: "In any kind of cognitive transaction to the human or non-human environment, a variety of information processing activities may go on. Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in service of some concrete goal or objective." (P.232). In another research paper, Flavell worked in the direction of exploring diverse areas of Metacognition. He framed a model of metacognitive monitoring, including four classes of various skills. These "four classes included (a) metacognitive knowledge, (b) metacognitive experiences, (c) tasks or goals, and (d) strategies or activities". Flavell believed that metacognition is an outcome of intentional activation. Sometimes processes of metacognition can fail

to achieve desired effects. It can also lead to the impact of behavior on metacognitive applications.

Based on the assumptions of his theory of learning with respect to metacognitive knowledge, he further explored different variables. From the study of intra and inter variables, he affirmed the basic achievement of generalized learning outcomes. As a conclusion, he established that cultural influence frames the beliefs about learning. Another factor discussed here by Flavell in 1987 is the explanation of task variables. The learner learns to imply the knowledge through the carry forward activities. The experience with the activities makes the thought of the learner, to decide which task is easy or tedious. Further strategy variables execute the goals of the process of learning. This part of metacognition helps the learner to know about his various cognitive processes to know, whether he has reached the correct answers of learning or not. When a student is put into a situation, his metacognitive experiences arise when they are counted by what he has achieved. In his circumstances, he is stimulated by metacognitive faculties, the outcome of which determines his achievements. His critical thinking also gets developed through these experiences. These experiences also cast their impact upon the affective domain of the learner.

Flavell was of the opinion that time nurtures the awareness part of the student with the consistent experience and with the time-bound effort. This ability to gain the awareness part of metacognition forms the metacognitive domain goals. Another change that occurs during childhood development is the sense of the self as an active agent in one's own experiences. When Flavell (1987) was popularizing the theory of metacognition. He could foresee numerous learning opportunities for the

development of learners in the field of Educational Psychology based on metacognitive knowledge, experiences and tasks, and planning for activities.

1.2.5. Metacognition in the Conceptual Context

Most relevant to historical context, the short-term memory storage of content is cognition-based. The information stored in the long-term memory can be controlled by various processes. On analyzing the working of the mind, the story of memory-based information depends on three stages. The processing of any content in the memory also depends on the efficiency of the way information is stored. During the first stage over a given period of time, a learner's quality to memorize matters a lot. It also describes to what degree the capacity of the mind is employed to store any given information. The second and final stage of the mind's process of storing any given information involves structures and functions. This further leads to the understanding of the content through problem-solving. An individual learner is connected with the external world at one level and with self at another level. Therefore, it can be concluded from the research carried out by Schwartz & Perfect, 2002, that the concept of metacognition originated from the two important branches of psychology.

The concept of metacognition finds its place, according to developmental psychology from Jean Piaget's theory. Another more refined form of metacognitive research was initiated in the late 1970's. Havel and his colleagues observed how the understanding among the children developed on the basis of their cognitive psychology. The credit goes to Hart for studying feelings on the basis of learning experiences, way back in the year 1965. It was popularly known as feelings of

knowing experiences. Schwartz & Perfect, 2002, were of the opinion that mainstream cognitive psychology did not give due recognition to the researches related to metacognition. This research further studied three aspects including a.) knowledge of tactics b.) metacognitive strategies for effective implications c.)

To date, metacognition research has come to the following conclusions: a) knowing about knowing grows, b) both children and adults struggle to track cognitions, and c) certain techniques are difficult to master and easy to abandon (Garner & Alexander, 1989)

In the year 1997, familiar, asserted that learning through metacognition which includes cognitive monitoring to acknowledge one's knowledge considered an effective technique.

Put differently for a person to observe his or her thought processes, the mind need not simultaneously be both the observer and the observed, but instead the 'mind's eye' looks back at the products of the mind that have been stored in memory.

It means with activities especially visual all the areas of the brain are activated. This flipped classroom is also one in which through its activities the students stored the content in their memory and then they apply it through the monitoring.

1.2.6. Impact of Metacognition on Cognitive Behaviour

With the increase in age, older children display higher metacognition attitudes. This is confirmed by the fact that there is a higher correlation reflected between metacognition knowledge and cognitive behavior. (Schneider & Pressley, 1989). This can be further reinforced by explaining the attribution theory of Weiner,

1985. According to his theory, self- attributions are the factors that determine good performance at an examination or a failure in solving a problem, etc. There are various key elements that play an important role in the achievement of success based on attributes like self-effort, luck, received help, ability, and so forth. The success can further be explained on the basis of a variety of cognitive tasks. Teachers should be trained in recognizing students, making learning strategies through surveys, interviews, or other methods. Keeping in mind, the metacognitive attitudes of the students, such strategies should be practiced which are most important to their learning styles, assignments, and objectives based on their cognitive behavior rather than a dispersed approach.

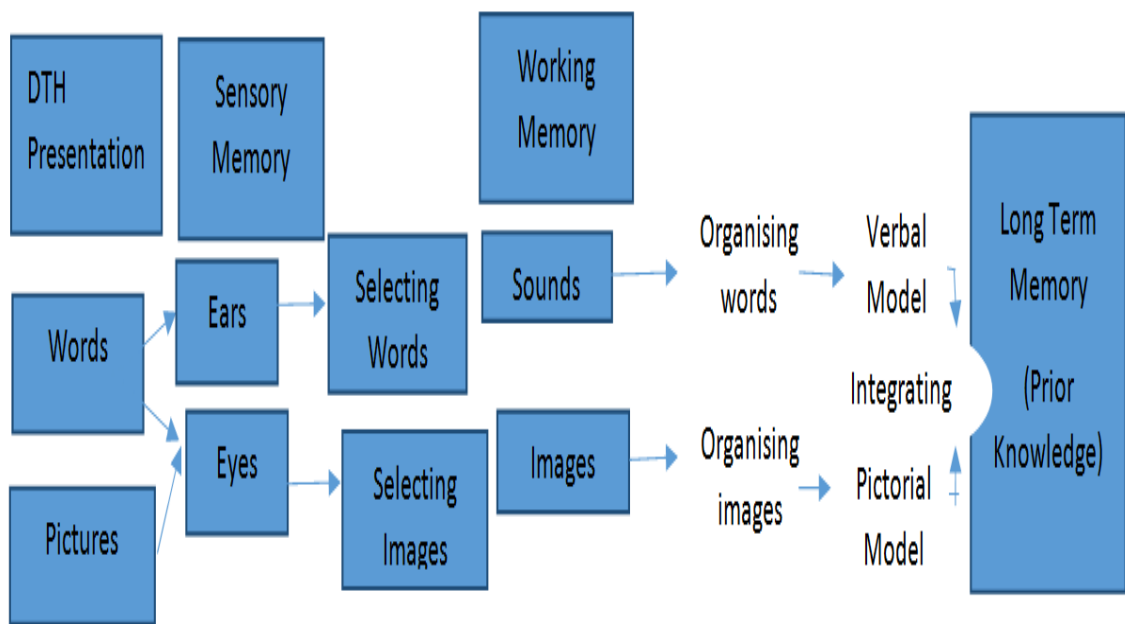


Figure: The Cognitive Theory of Multimedia learning, R.E. (Ed.)(2005).*The Cambridge Handbook of Multimedia Learning*

Source:http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2223-03862017000100002

The above model is equally applicable to the flipped classroom too, as the teacher adds content to prior knowledge of the students and that content is utilized in the classroom for making the class more interactive.

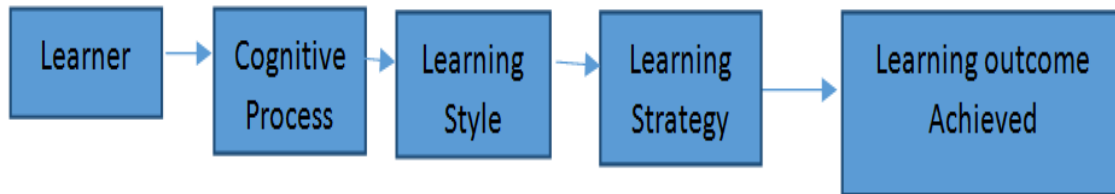


Figure: Schematic Representation of Student’s Learning with ICT

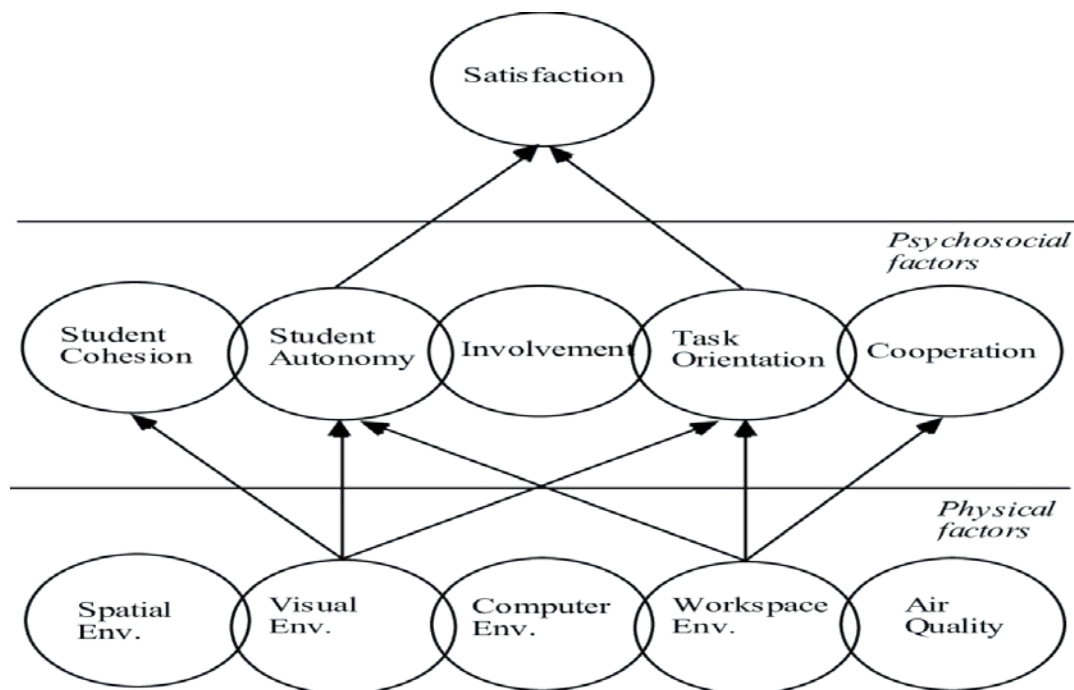


Figure: Schematic Representation of Student’s productivity.

Source:https://www.researchgate.net/figure/Schematic-Representation-of-a-Emerging-Model-for-Educational-Productivity_fig4_11788333.

1.3.1. Classroom Environment:

The classroom environment is one of the most important factors for active teaching. It is here that the learner’s basics of subject matter get cleared. It is also very important to have a conducive environment for using the Flipped model of

teaching. Therefore, it is essential to make it collaborative in approach. The teacher's role is all the more of a facilitator to boost and enrich his classroom environment involving the students for instructors as well as activity-based. It is a two-way approach basically. In order to draw 100% attention of the students, the teacher devises such activities which can enrich the subject knowledge. To keep the learners charged with enthusiasm, a ready-to-help support system proves to be very effective. When the student feels bounded with the teacher, his grasping also improves to a greater extent.

An intelligent teacher's student-connect is based on socialization and emotionality. It is a pivotal role to create such a classroom environment, where a student enjoys learning any new concept easily. It is the first step to arouse the interest of the student in the pleasing personality of the teacher. Then, the student gets extremely interested in the subject taught by the teacher. A smart learner himself proves to be a learning outcome as the teacher successfully transfers his subject knowledge. Such a student enjoys in a motivating classroom is eager to express himself as well as to show his good performance on the whole.

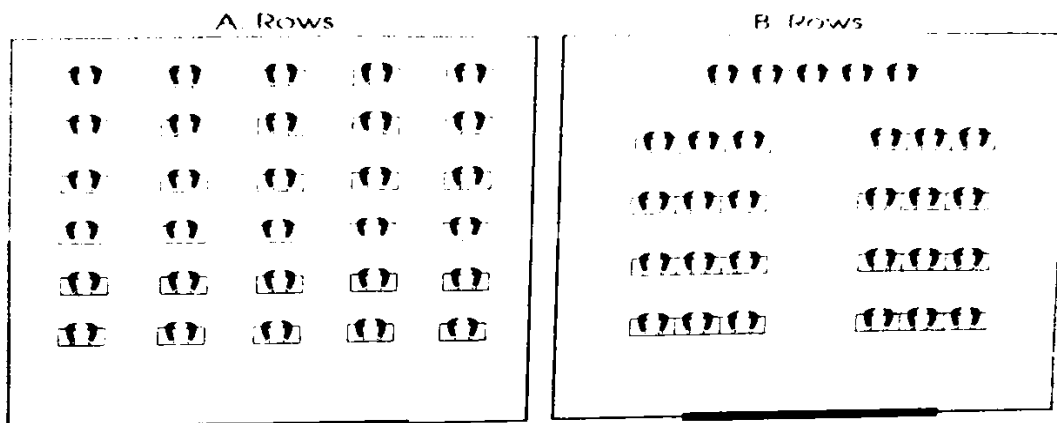
It is worth mentioning Steel's (1973) recommendations in relation to a classroom environment. He discusses six fundamental principles, namely (i.) security and shelter, (ii.) social interaction, (iii.) symbolic identity, (iv.) mission instrumentality, (v.) enjoyment, and (vi) development for the holistic classroom environment. The symbolic identification is a very result-oriented strategy, maintaining the classroom environment. It includes displaying the soft-boards displayed in the classrooms with information about the students. For better

communication, designed objects displayed in the classroom make it lively and learner-friendly.

Now we come to the task orientation in the physical environment of a classroom. The teachers can assign project-based activities to the student by forming groups of students. This type of work culture within the classroom offers opportunities among the peer through brainstorming on various topics. The learners get a chance to exchange their ideas as well as think out of the box. It also motivates the students to learn to work in a team. If the controlled classroom environments are compared to the flipped classroom environment, one can find a considerable difference between the two. Both types of models of teachings employ different instructional techniques. They altogether give out different outcomes.

It can be concluded that any pedagogy that can help in avoiding suffocation or orthodox teaching, would certainly deliver good results. Therefore, the model of Flipped focuses on task-based activities open learning, and a student-centric approach.

During maintaining a classroom environment certain seating arrangements can be made for activity-based learning, they are as follows:



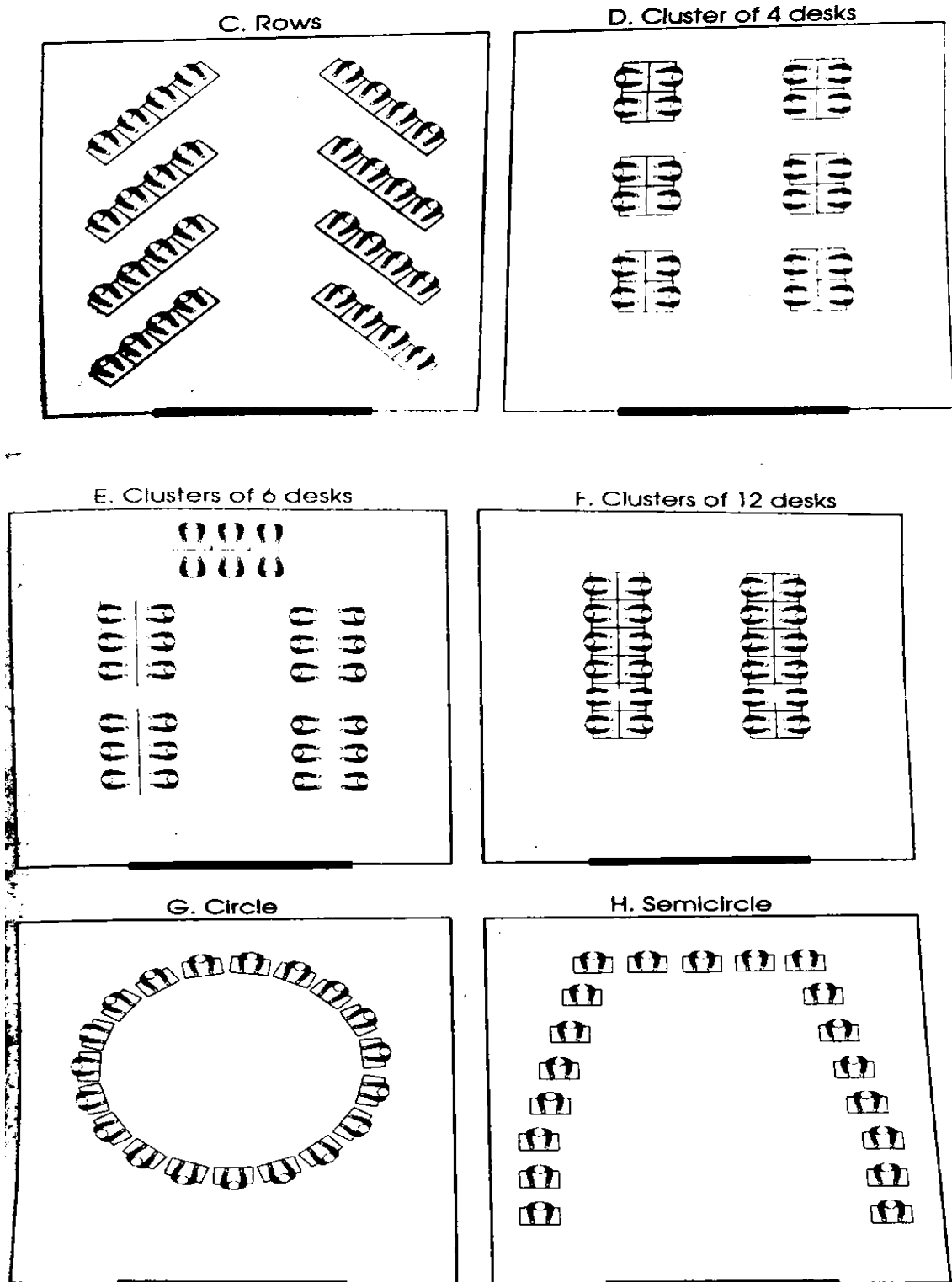


Figure: Possible sitting Arrangements

SOURCE- Getting Organized, Organizing Your Classroom And Materials (By- Paul R. Burden) year 1995

1.3.2. Structure in Lesson Planning for the Classroom

A teacher employs various instructional strategies to make his teaching effective. This includes lectures, demonstrations, recitations, questions, and practice. Teachers try to supervise all aspects of the lesson, objectives, activities, materials, assignments, interactions, and evaluation. Many more instructional strategies are interactive in nature. These involve group discussion methods. Those instructional strategies which emphasize inquiry and discovery are learner-centric in nature.

Practically the students should be given opportunities to learn through several strategies. Emmer, Everstion, and Anderson discovered in the year 1980 that the teachers who had flexible attitudes, were liked by the students. A variety of instructional strategies appeared to be more interesting to their respective students. Group learning proved to be another effective method to enhance the learning process in a given classroom environment. The students have a natural tendency to get into a group. The teachers can formulate these three types of grouping. It includes (i) Class-ability grouping (ii) cooperative learning groups and peer tutoring.

Academic Needs of the students:

When the teachers excel in utilizing their teaching methods, misbehavior on the part of the learners reduced considerably. To make the classroom environment vibrant, it is pertinent to address the academic needs of the students. Consequently, this leads to the development of a sense of competence. Not only it enriches the environment, but also helps the students in maintaining their progress.

The students find themselves at ease in such a supportive environment. They also become more and more focused and goal-oriented.

Use of synchronous interaction in Virtual Classrooms:

This technique of synchronous interaction was first of all used by Cao, Griffin, and Bai in the year of 2009. According to them, this technique promotes blended learning in the classroom. The material used outside the classroom supports flipped classrooms as its archives can also be used later on. This can also prove helpful to the metacognition of a learner.

The researches show that the students learn better in the online environment. Their grades improved through synchronous classrooms. They outshone in almost every skill of learning. According to Clark(2005), online learners can be engaged at their own pace, respond actively by using small groups. It was proved by Carbonaro et al. In the year (2008), that shorter time duration of classes ensured better student understanding and concentration. The synchronous virtual meetings offer live sessions. This serves as a synchronization tool to promote teamwork among health professionals. It puts them across the boundaries of time and space for quick discussions and problem-solving at a fast pace.

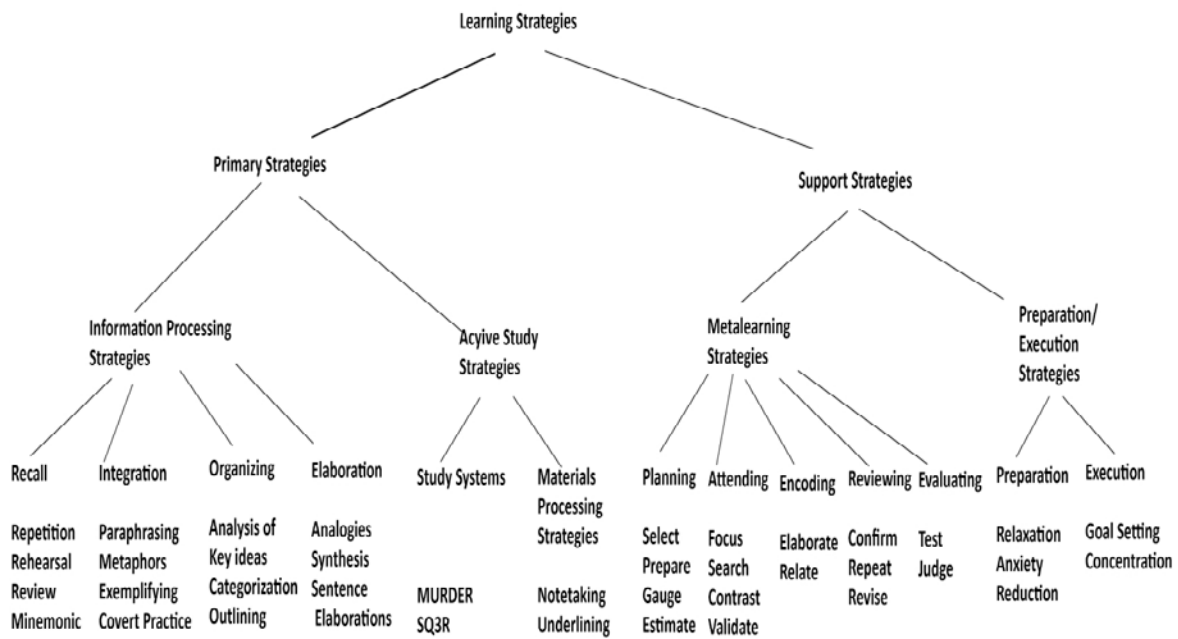


Figure: Taxonomy of Learning Strategies

Source: Learning Strategies, *World Yearbook of Education 1988, Education for New Technologies*

Any classroom, where lectures and group discussions form the core constituents of a traditional setup. The facts reveal that the lecture method does not give opportunities to the students for clearing their queries in a stipulated classroom time. Not even, any active discussion can take place keeping in view the syllabus to be covered within the time framework. So in a traditional classroom environment in a college, activities are adopted to produce desired results. On analyzing the structure of these activities, it is found that different levels of social interactions can take place. This type of organization of activities leads to multitasking or multipurpose forms of relationships in due course of time which generate value-based outcomes.

Further, analysis of these social interactions reveals the experience of students who take part in these activities held within the classroom environment. There are pertinent questions that come to mind at this stage. Firstly, what should be

the nature of the normative outcomes of classroom tasks. Secondly, how the classroom task experiences of students vary at their individual level. Thirdly, how much should be the duration of participation in a particular task. Lastly, how long it can generate enormous during the organization of a particular task. To understand the different stages of moral socialization, the research should be focused on the quality of the content. The timings of students' participation also play an important role differently in an institution.

1.4.1. Academic Achievement

In recent times, many innovative developments have taken place in every field of life to make it easy. It is important to mention that new vistas have opened up in the field of Education also. Many new constructs, strategies, methods, skills, and materials have been added to the field of education and its classrooms. It makes the teaching-learning process more effective and fruitful. The impactful learning outcomes of academic achievement can be judged as an important factor to understand the students. In the context of their learning style, the key factors that determine academic achievement depend upon the motivational pattern. That is why the teachers ensure delivery of their subject matter putting in their earnest efforts. Their result-oriented approach helps them to do their job in a better manner. Undoubtedly, teachers want to improve their instructional pedagogy. So the pattern of academic achievement plays a crucial role. Another reason for this purpose is to complete the prescribed syllabus, within a time framework. One more objective is, to keep a track record of the student's subject knowledge and grasping power. There are different levels of learning related to academic achievement on the basis of a learner assessment.

1.4.2. Assessing Levels of Learning:

Through an achievement test, the teacher's objective is to assess the level which is represented by habits. A habit is a response, verbal or otherwise that follows immediately after the stimulus with which it has been associated. At the first level of learning, a habit is best described by the memory level of the students. The subject matter gets memorized on the basis of the capacity of the student to reproduce without much thought or reflection after a proper stimulus. The second level of learning is the next higher level of understanding. By higher level, we mean the increased capacity of retention power. It depends upon how much a student can memorize unlimited subject matter without understanding. The effect of the intervention of flipping classroom and academic achievement test can measure the learning outcomes. This facilitates the teacher to assess a group of students in a formative manner. They respond by giving the central idea of the subject matter.

At the third level of learning, the teachers assess their students from the level of understanding of the content of every subject studied by them. Now the learners develop in-depth learning to solve surprising tests which they have never come across earlier. This can be best reflected through the summative assessment. The educationists opined that the ultimate purpose of formal education is to equip the student community with knowledge of the subject. It will prepare them to use this knowledge in every situation of life. The knowledge acquired through various educational platforms enables the learners to cope with the problems related to social, psychological, philosophical spheres, and personal life too. The present research also indicates whether the prospective teachers can use the information

gathered over a longer period. The principles and information learned and put to use for problem-solving last long.

Dimension	Learning goal-oriented learner	Performance Prove goal-oriented learner	Performance avoidance goal-oriented learner
The central point of Learning	How meaningful learning is going on	How well performance is taking place than others	How to Avoid demonstrating situation at any challenging learning task
Success of Learning	In the improvement of once competence and self-development	In proving competence at related norms.	In avoidance to be an example of a low performer
Value of Learning	The effort to learn and acquire new knowledge and skill	Desire to show a high level of performance and grade at related norm.	To keep away his/herself to perform at any risk.
Reason of Satisfaction	In hardwork to learn something new from challenging task or situation.	To do better than others and to notice as a good learner by the authority.	Not to be noticed by the authority as a slow or incapable learner.
View towards mistake or error	Less concerned with making mistakes and tendency to take a lesson from every mistake.	Highly aware of, not making any mistake due to prestigious issues.	Avoid such type of situation in which mistakes can occur due to a high level of anxiety.
Type of motivation	Intrinsically motivated	Externally motivated	Negatively externally motivated
Use of feedback	The tendency to use achieved feedbacks on past performance in the evaluation of current performance.	Looking just for positive reinforcement and feedback.	Just want not to be evaluated due to fear to fail.

Importance of process and result	The learning process and the result, both are equally important.	More emphasis on the result than the process	Apathetic behavior towards the learning process and results both.
Competition	Competition with self	Always in competition with classmates or others.	Don't desire any type of competition, neither with self nor with others.
Evaluation	The tendency to take the evaluation process as the means to improve oneself and know the merits of the learning process.	The evaluation process is the means to show abilities and desires favorable judgment about work competence.	Tend to avoid the situations in which they will receive an evaluation.
View towards challenging tasks	Willingness to take on challenging tasks to learn new things.	Desire to choose such type of challenging task in which he/she feels competent than the other	Avoid taking any challenging task.
Need of Evaluation	The desire for correct evaluation	Desire to positively evaluated	Desire to avoid evaluation due to high levels of anxiety about failing.

Figure: Behavioural pattern of the learners motivated with different types of the learning situation

Source:Dr. Mahesh Narayan Dixit *Goal Orientation And Academic Achievement(2018)*

1.4.3. Importance of Academic Achievement

An Academic achievement plays an important role in this research concerning the learning outcomes:

- 1) A new dimension is provided to understand the student's learning behavior.

- 2) This is useful for the learners and teachers, both to have the insight to understand the learning patterns that are going on in the classroom.
- 3) Through this, it becomes easy to explain the reasons for particular behaviors shown by the students during the learning process.
- 4) The three approaches are associated with the adoption of delinquent behavior of the student. The teacher may apply these approaches to make their students goal-oriented and effective learners.
- 5) This also inculcates adaptive behavior among students.
- 6) This is also important in creating a self-motivated learning environment, to achieve desired results.
- 7) Researchers have established that different types of activities are used as a reliable and good predictor of students' behavior and to enhance their achievement level.
- 8) It also leads to focused learning.
- 9) Many important factors play a key role in academic achievement. like self-efficacy, adaptive, maladaptive behaviors, goal setting, effort to achieve something, etc.
- 10) It is useful for motivating individuals to realize their self-learning, an enriched environment through activities, and different patterns of behavior.

In this study, the role of academic achievement is to develop cognitive, affective, and psychomotor traits which are assessed by conducting a test of B.Ed.

students. Through reliable information, the questions like how the other variables affect the academic achievement of prospective teachers. This research would also aim at motivating and developing the ability among students of B.Ed. to become lifelong learners.

The most viable, achievable task in the 21st-century is to become an effective and skilled teacher.

1.5. Significance of the Study

India has seen a greater degree of falling standards of Education. A strong need is felt to emphasize, skill-based education and create manpower with employable attributes. In the present education system, a large number of unemployable youth lacking in essential skills fit for any job. It is due to the formation of a system where knowledge is provided in a theoretical manner through content delivery within the classroom time. The student is left to himself for sharpening his knowledge of a particular subject. He has no access to any other learning resource in a traditional setup. But with the introduction of technologically-enabled video lectures satisfy the needs of a student at his own pace. He can access any subject material through social media or prepared by his teachers. Here, a very important concept comes to one's mind that how absenteeism and private coaching can be coped up. So the students should be given study material before teaching. Once the student goes through this material, he is confident to ask questions and clear his doubts during classroom time. In this manner, passive learning is replaced with active learning. Many types of research have been carried out to see this drastic change in the teaching and learning process. But the most significant contribution by

Bergman and Aeron Sam(2007) heralded the concept of learning outside the classroom. The flipped model of teaching if studied at the level of metacognition can produce greater academic achievement. The perspective B.Ed. teachers should be trained to produce curriculum based video-lectures and reinforce the introduction of flipped learning in their future classrooms. After a careful, review of literature studied related to the study of this area, it was found that this field of research offers great scope.

Although the number of initiatives has been planned but not utilized properly due to less expertise. Keeping this in mind to bring awareness, integration of ICT is taken to be considered as an integral part of education. Therefore the use of present pedagogy is found to be useful in achieving fruitful results for the learners. With this aim in view, the researcher has undertaken this research with the prospective teachers of teacher training colleges, to make this work more constructive.

1.6. Statement of the Problem

Effect of Flipped Classroom Teaching on Meta-Cognition, Classroom Environment and Academic Achievement of B.Ed. Students

1.7. Objectives of the Study

Objective No. 1: To compare the scores of Meta-cognition between Experimental and Control group of B.Ed. students.

Objective No. 2: To compare the scores of Classroom Environment between Experimental and control group of B.Ed. students.

Objective No. 3: To compare the scores of Academic Achievement between Experimental and control group of B.Ed. students.

1.8. Hypotheses of the study

1. There will be no significant difference in the scores of Meta-cognition between Experimental and Control groups of B.Ed. students.
2. There will be no significant difference in the scores of Classroom Environment Experimental and Control groups of B.Ed. students.
3. There will be no significant difference in the scores of Academic Achievement between Experimental and Control groups of B.Ed. students.

1.9. Operational definitions of key terms

Meaning of Effect: In this study, effect means when we say effects of the flipped classroom, we are referring to what happens when flipped classroom will be used.

Meaning of B. Ed. In this study, B.Ed students refer to those students who were studying in private B.Ed colleges in the Kaithal district of Haryana state during the year 2019-2021.

Operational Definition of Flipped Classroom:

In the present study, the meaning of flipped classroom is used to employ to see, how the flipping process can enhance the learning outcomes, level of Metacognitive and can make the learning Environment effective for B.Ed. Students. A high score exhibits that, this pedagogy can bring good grades with all three variables.

In this study flipped classrooms means to use both online and offline teaching together.

Conceptual Definition of Metacognition:

“The monitoring and control of thought” **Martinez, 2006, p. 696**

Operational definition of Metacognition

Metacognition is generally associated with a learner's perception, power, and understanding of his own learning process.

Conceptual meaning of a classroom environment: considering objectives beforehand influences the students' perceptions of their place in the form of the classroom, besides this proper organization it is essential to have the desired outcomes of the learner. This environment can exert both direct and indirect effects on the students. (Proshansky & Wolfe, 1974; Weinstein and David, 1987)

- **Operational Meaning:** Here In the study,the classroom environment means students should involve, affiliate, gain student support, must have a good competitive spirit, must have rule clarity, must have teacher control and class should be innovative.
- **Operational Definition Academic achievement:** In this study,learning outcomes have been measured through a formative test conducted by the researcher herself.

1.10. Delimitation of the study:

- 1) The investigation is confined only to two Government colleges affiliated with to same University.
- 2) The investigation will be conducted only on B.Ed. students.
- 3) All the 60 B.Ed. students will be selected for investigation.
- 4) The content will be from B.Ed. syllabus of concerned University for experimental purpose.