

Education through Audio-Visual Communication: A Study of Science Communication in Early Childhood through Online Videos

Bharti Shandilya

Ph.D. Scholar

Journalism and Mass Communication

School of Journalism and New Media Studies

India Gandhi National Open University

Maidan Ghari, New Delhi, India

**House No.: A-284, Street No.-2/4, Meet Nagar, Delhi-110094*

Contact: 9650215023

ABSTRACT

We are living in a world of innovation and growing scientific inquiry & literacy among each part of society. Online content becomes an inevitable part of the world and it has changed everything. In the case of early childhood, science communication and scientific learning becomes an essential domain for children's early thinking and belief building. It is scientifically proven that in early childhood science communication builds the future understanding, important skills of learning and attitude formation of a child. The social learning theory suggested that people learn from each other via observation and imitating others. This paper inquires about how online videos are helpful in learning science and how it has changed the learning pattern in early childhood. The objective of this paper is to find out the importance of science learning through audio-visual learning Techniques. This paper further explores the relevance of teaching and learning through online learning Techniques. To achieve the objectives quantitative research approach has been adopted for data collection. The finding of this study revealed that teachers and parents of Delhi are in favor of science communication through online videos in early childhood learning for the overall development of a child and online teaching learning is the future of education. It should be adopted and encouraged in every educational setup.

Keywords: *Audio-Visual Technique, Early Childhood, learning, Science Communication, Online Videos*

1. INTRODUCTION

Learning science is falls under the day to day activities for young children. They do not know they are learning but they engage their minds to learn different scientific activities and adopt & apply them into their everyday world. Nobody teaches young children how to be curious, discover and learn new things, ask questions and explore different things while playing it came to them naturally. It can be consider as a myth that teacher and parents needs to convince a child to think 'science is fun' but learning science is always been a game for children even in the later stage of their education as well; if they get proper guidance in terms of learning science through games. This paper inquires about the learning aspects of online videos based on science.

The aim of this research paper is to find out the importance of science communication in early childhood through audio-visual learning Techniques. Online learning is becoming the most favorite medium of learning and teaching in this digital era. This is a worth exploring question that 'how online learning Techniques are contributing to the early learning of children and helping them to be more curious and creative'.

1.1 Early Childhood and Science learning

Scientific digital literacy became an essential tool for learning and overall development. A young child needs a proper foundation to develop this skill. It can be happen through early elementary training. In 1999, Zeece described the fact that formal science education is lacking in its basis in the real world because it can't be called the true science [1]. The common understanding about science is limited to learning facts and figures about the world. But some people think science is nothing but discovering wonderful ideas [2].The characteristics of young children as learners are very much similar to the other idea of science which says science is an art of discovering new and wonderful ideas because they are curious and passionate learners by nature [3].

In the early childhood, children are more into learning new things and apply them in their games for fun. Learning is a born talent that every human being has by birth and one cannot deny this fact [4]. This attitude indicates that in the early childhood age children started thinking in a scientific way even before going to school [5].

1.2 Role of a Science Teacher in Early Childhood

The best way to learn science is only through particles [6]. When the question of teaching science arrives; the role of a teacher became more accountable and critical. In the phase of early childhood; a teacher shapes the opinion and thoughts of a child. Research shows that till the age of seven, an opinion has been formed about science learning. It can be either positive or negative. This kind of results put so much pressure on the teachers in the profession of early childhood educator.

A teacher plays a crucial and critical role in science learning in early childhood. This is fall under very complex teaching because teachers address the scientific inquiry of children. The early childhood education is primarily focused on the overall development of children including social, emotional mental as well as physical. Science activities are often considered as major tool of development. This kind of activities should not be restricted to just teaching counting and color and shape recognition to the children but it should be either make them more curious and engaging in the informative activities which enhance their scientific inquiry. Teaching science in early childhood is an art that teacher needs to master to make children a better learner. If a teacher is not well aware of scientific activities or “Sciencing” technique than he or she is never be able to make science a fun subject to the children. Therefore, early childhood educator doesn’t have any choice but to teach science in the proper manner because they have the responsibility to shape young minds.

In 2003, Worth and Grollman gave a modal names Young Child Inquiry. This modal gave a guiding structure for teachers to enhance the curiosity and investigative inquiry behavior of a child (Figure 1). This circular model explains that a period of engagement where children can explore the materials and phenomenon; apart from that they can be able to experience what they are their abilities and how they can wonder and share the ideas [7]

1.3 Teaching “Sciencing”

In early childhood; children introduced to the art of “Sciencing”. Sciencing can be defined as active involvement in science and the involvement should not be restricted. It should be naturally come into the mind through activities related to science. This can be helpful for engaging children not only physically but mentally as well for discovering and investigating new things

around them [8]. The engaging approach of learning science allows children to be more curious and investigative in nature. This Technique made them explore and experience the other side of learning and joy of having wonderful ideas through science.

Science curriculum teaching goals are emphasizes on the attitude formation of a child because only certain attitudes towards learning science develop the component of scientific thinking. These attitudes commonly include creating curiosity, energy to get into any experiment and a desire to change and challenge the existing theories and develop the new concepts in science [9]. A teacher needs to be aware of these facts and incorporate them into their teaching Techniques.

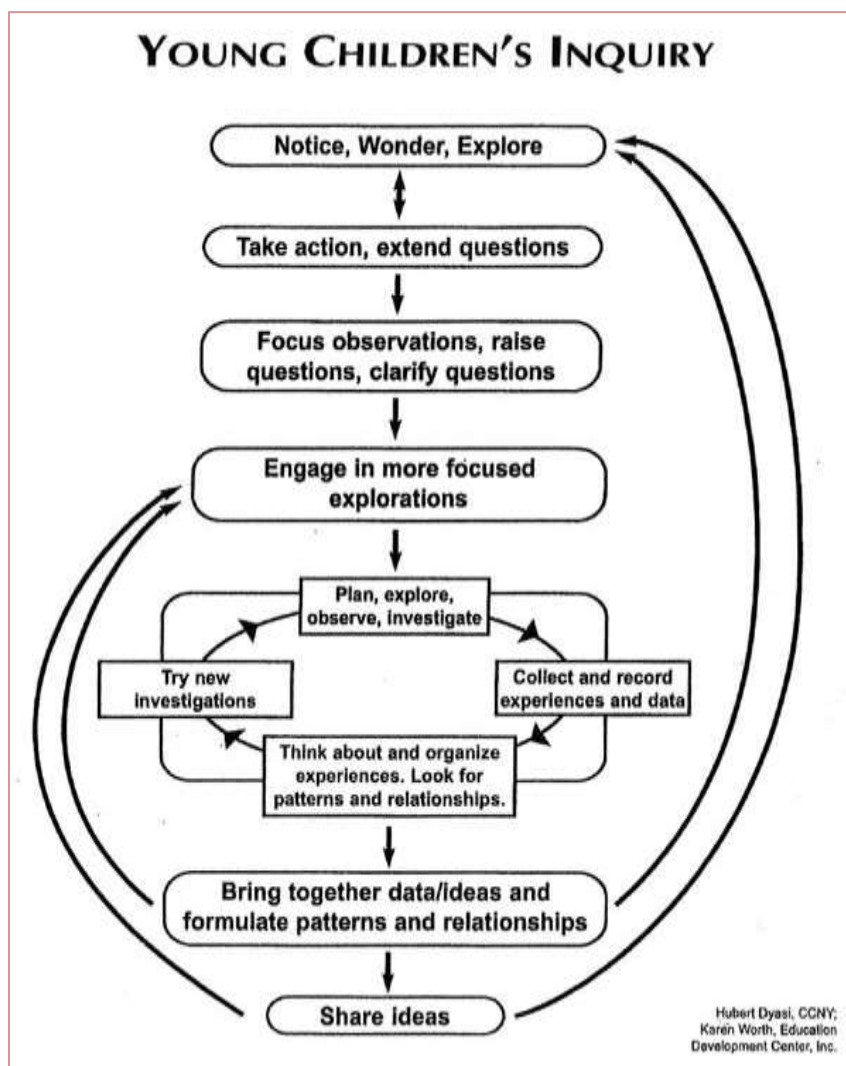


Figure: 1: Hubert Dyasi, CCNY; Karen Worth, Education Development Center, Inc

1.4 Science Communication through Online Videos

Online videos are engaging in nature and entertaining in their presentation. Through online videos children engage their minds at utmost level so the percentage of learning increased because of full involvement. Therefore, teaching and learning science must be “an active enterprise” in the Preschool as well as in the primary level [10].

Science is often neglected in the early learning classroom; this is a really sad fact for young mind development. For children’s science learning; the important factors are problem-solving and reflective thinking [11]. The Constrictive approach of understanding early childhood education argues that children construct knowledge instead of knowledge is being transmitted into a child’s mind. According to this approach children are considered as “intellectual explorers”[12]. In consideration of this approach, it can be assumed that children learn from their native environment. Young mind develops its own theories and creates their own complexes [13].

Eminent researcher of early childhood development Zeece (1999) says science should be an integrated part of all the learning areas i.e. Math, social science as well as art. For a better early childhood learning and development literacy scientific thinking can be taught through storytelling and poetry as well. The researcher outlined the following benefits by doing that:

- Make available accurate information in the interesting language.
- Offer them the different point of views on the same subject or topic.
- Prepare children for applying scientific thinking for problem solving and make their mind ready for enquiry
- Make them realize the importance of all living things on the earth and how to respect and appreciate them in their day to day life.

Considering the above facts in mind the researcher tries to explore the importance of science communication in early childhood and further explores the role of online videos in science learning. This paper aims to investigate the opinion of teachers and parents of young children regarding the teaching and learning aspects of science communication.

2. MATERIAL AND METHODS

2.1 Aim of the study: The aim of this study is to know the importance of audio visual learning Techniques for science communication in the early childhood. This study further explores the teaching- learning aspects of online Techniques.

2.2 Objective: To achieve the aim of the study following objectives has been formed:

- **Objective 1:** To know the importance of science learning in early childhood.
- **Objective 2:** To find out the importance of Audio/Visual learning Techniques.
- **Objective 3:** To identify the relevance of teaching and learning through online videos.

2.3 Research Questions:

- How digital technology is becoming important part of learning in early childhood?
- Is technology changing the teaching pattern of science?
- How important is to teach a child through audiovisual technique?

2.4 Theoretical framework:

2.4.1 Learning theories: Educational Learning theories are mainly focused on learning patterns and based on a conceptual framework that describes a student's learning pattern. How a student absorbs, processes and retains knowledge [14]. The social learning theory suggested that people learn from each other via observation and imitating others [15]. Therefore audio-visual technique helps a child to learn fast.

2.4.2 Technological Determination Theory: Technological determinism theory claims to provide a link between technology and a society's nature. This theory tries to explain how technology is changing society's environment and to what extent it is changing the world.

Thorstein Veblen coined the term 'technological determinism'. This theory mainly focuses on to define how technology is viewed as the driving force of culture in a society. Teaching and learning Techniques are also changing due to technology. Now, books are not only the medium of learning but audio-visual medium became equally important in the field of education. Every child is exposed with the mobile and online world. This is affecting their early learning process.

2.5 Research Design

- **Approach:** A quantitative research approach has been adopted for this study. This approach is based on the factual data collection.
- **Sample Universe:** Pre-Nursery and Primary teachers and parents of 3-8 years old residing in Delhi have been selected as a sample for data collection.
- **Sampling:** Purposive sampling has been used to collect the data.
- **Method:** Data has been collected through survey method.
- **Data collection:** A questioner containing 20 questions has been prepared to collect the data. Five questions were related to their age, gender, profession, marital status and city where they live; remaining question were related to online videos, science communication, classroom teaching etc. Likert scale had been used for the options i.e. strongly agree, agree, neutral, disagree and strongly disagree.

The questioner was divided into three parts according to each objective:

1. Importance of Science Learning in Early Childhood **(For Objective 1)**
2. Importance of Audio Visual Learning Techniques **(For Objective 2)**
3. To identify the relevance of teaching and learning through online videos.
(For Objective)

All sections were dedicated to fulfill the need of the objectives.

- **Mode of Data Collection:** Online data collection technique has been used to collect the data

- **Online data collection:** An online survey was conducted among Delhi's Teachers and parents (above 20) using Google forms from August 16 to August 31st, 2018. The selected sample received a link of the survey's URL through an email and on their what's app number (text and multimedia messages sharing android mobile application). A total number of 96 links were sent (46 Pre-Nursery Teachers and 50 parents); out of which 48 responded to survey. Out of 48 samples, 21 responded participants were teachers under the age range of 20 above (Median =38) and 27 respondents were parents (either mother or father) of 3 to 8 years old.
- **Data Analysis:** Data has been analyzed based on the percentage calculation of each question for achieving the objectives 1, 2 and 3.

3. RESULT

To achieve the objectives of the study a survey has been conducted among parents and teachers to know their opinion on the importance of science learning and importance of audio-visual Techniques for learning in early childhood. The survey questioner has been divided into three parts one part of the questioner contains questions related to the identification of the importance of science learning among parents and teachers of young children and the second part deals with questions related to importance of audio-visual learning Techniques among them. Third part was containing question related to the relevance of teaching and learning through online videos.

Meeting the objectives: To achieve the objectives the researcher calculated the percentage of the responses according to the Likert Scale (from strongly agree to strongly disagree) and analyzed them based on the response percentage.

3.1 Objective One: To know the importance of science communication in early childhood.

On the question of importance of proper science communication in early childhood for curiosity development; 28 % population strongly agreed on the fact that science communication is certainly important for curiosity development in a child.48% was agreed and 19% population was neutral on the importance of quality science communication in early childhood.

Later in this section, on the question of importance of science learning for the brain development of a child; 60% population was strongly agreed on this statement where 20 % was agreed and 20 % was neutral on this fact. **(Table: 1)**

<u>Table:1</u>													
<u>(Objective 1): Importance of Science Communication in Early Childhood</u>													
1. Proper science communication is most important to develop curiosity in a child's mind?	<table border="1"><caption>Data for Statement 1</caption><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Strongly Agree</td><td>28%</td></tr><tr><td>Agree</td><td>48%</td></tr><tr><td>Neutral</td><td>19%</td></tr><tr><td>Disagree</td><td>5%</td></tr><tr><td>Strongly Disagree</td><td>0%</td></tr></tbody></table>	Response	Percentage	Strongly Agree	28%	Agree	48%	Neutral	19%	Disagree	5%	Strongly Disagree	0%
Response	Percentage												
Strongly Agree	28%												
Agree	48%												
Neutral	19%												
Disagree	5%												
Strongly Disagree	0%												
2. Science learning is important for a child's brain Development?	<table border="1"><caption>Data for Statement 2</caption><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Strongly Agree</td><td>60%</td></tr><tr><td>Agree</td><td>20%</td></tr><tr><td>Neutral</td><td>20%</td></tr><tr><td>Disagree</td><td>0%</td></tr><tr><td>Strongly Disagree</td><td>0%</td></tr></tbody></table>	Response	Percentage	Strongly Agree	60%	Agree	20%	Neutral	20%	Disagree	0%	Strongly Disagree	0%
Response	Percentage												
Strongly Agree	60%												
Agree	20%												
Neutral	20%												
Disagree	0%												
Strongly Disagree	0%												

Based on the above percentage; it can be stated that quality science communication is important for brain and curiosity development of a child in early childhood. In this age, proper guidance is needed to enhance the potential of a child's mind.

3.2 Objective Two: To find out the importance of audio-visual learning Techniques.

On the question of audio-visual learning Techniques can help a child to learn fast; 60% population was strongly agreed and 40 % was agreed on the fact that online learning can help a child to learn fast.

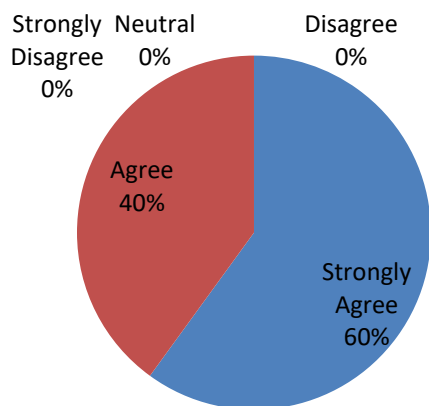
On the other hand, the population has a different point of opinion when it comes to mobile communication importance in science education. 43 % was agreed while 24% were not agreed on this statement. 43 % population was agreed on importance of mobile communication as learning devises in early childhood, where 28 % denied this statement; 28% was neutral on this matter.

When the question of the importance of audio-visual techniques for learning arises, 62% population was agreed on this while 28% strongly feel A/V Technique help a child to learn the fact. Moreover, digital access is making a child quick learner; 62 % population agrees on that and 14 % disagree. Online videos for teaching science are important. 57% population agreed on this while 15% strongly agreed and 14 % disagree on this statement. 62% population agreed on the importance of Audio Visual learning in early childhood. While 9 % disagree on this fact **(Table: 2)**

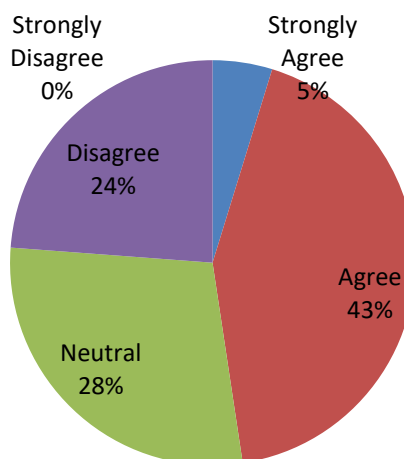
Table:2

(Objective:2) Importance of Audio Visual Learning Techniques

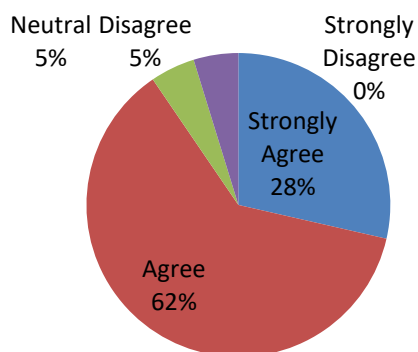
1 Do you think audio-visual learning Technique is helping a child to learn fast?



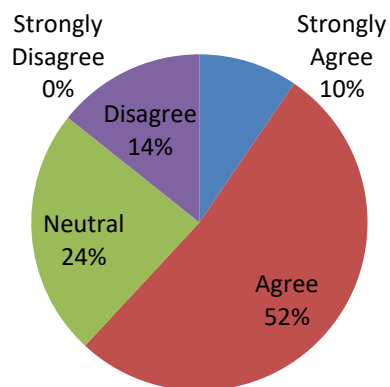
2 Mobile Communication became an important tool of teaching science to the children in School in Early age?



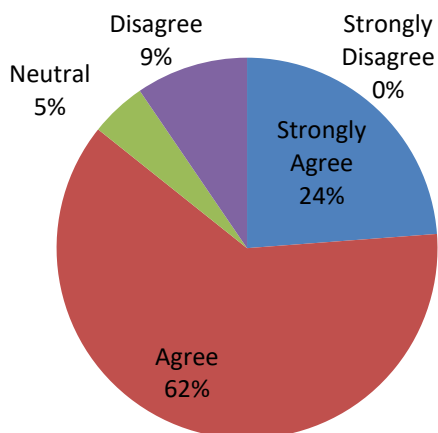
3 A Child can learn fast through online videos and audio-visual Technique?



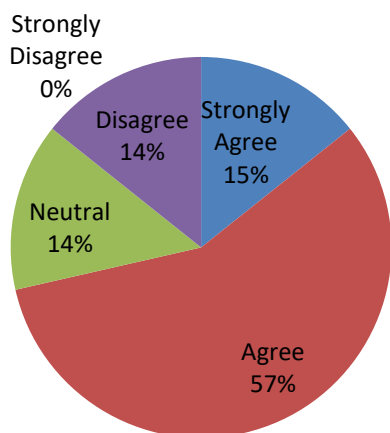
4 Mobile and Internet access in the early age making a child more smart and quick learner?



5 Do you think showing online educational videos to teach a child is important part of their early learning?



6 For Science Communication the best possible tool is science based Online videos?



Based on the above facts, it can be stated that audio-visual learning Techniques can help a child to learn fast and mobile is moderately important as a learning device. Digital access can make a child quick learner and online videos are a very important part of learning new things in the innovative way.

3.3 Objective 3: To identify the relevance of teaching and learning through online videos.

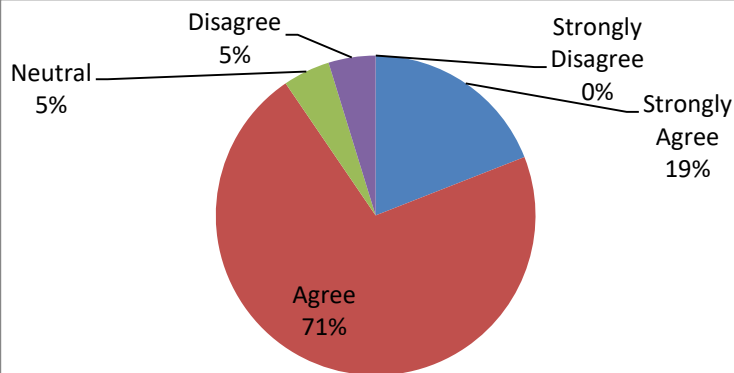
When the question of the relevance of teaching and learning through online videos asked from the population they have one-sided responses in this regard (mostly positive). 71% population agrees on Science learning is changing due to online videos and digital boom. On the other hand, science based cartoons are changing the learning aspects. 71% population strongly agreed on this statement. 81 % says yes and agreed on the statement that online videos need to be encouraged for teaching purpose. Smart classroom helped teaching to evolve; 62 % population is agreed on this statement. Moreover, the mobile and internet boom changed teaching. 62% was strongly agreed on this. Mobile and internet do changed the teaching world.

On the question of the future of online learning of the population was almost equally divided into strongly agree (38%) and agreed (33%). So the population thought online is the future of teaching and learning. Online teaching is making science education more fun. 57% says yes (Agreed) but 10% did not agree on this. Online learning should be encouraged in a school set up. 48% says yes it should be encouraged in school setup. While 33 % says it must be but 5 % think it's not important. **(Table: 3)**

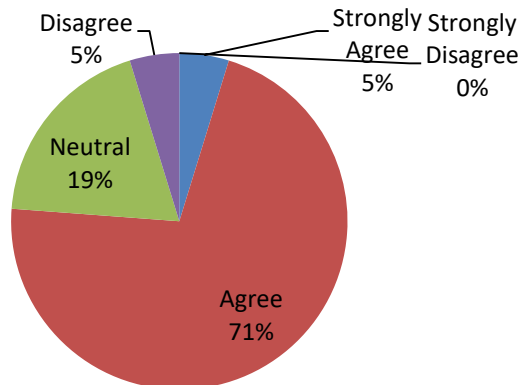
Table:3

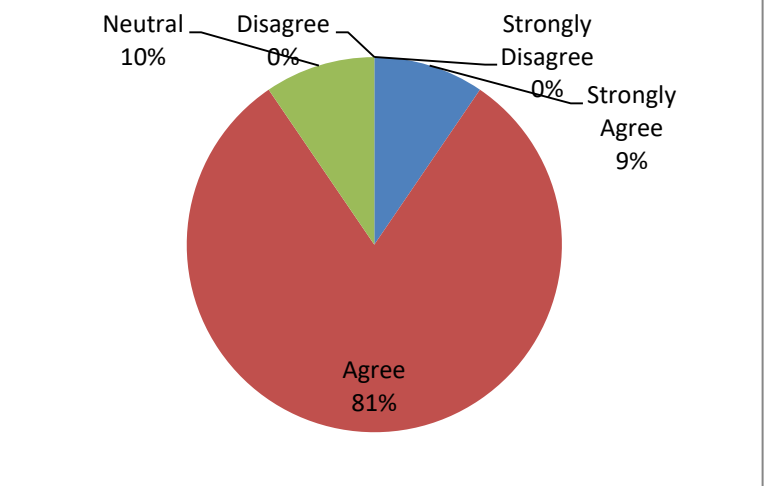
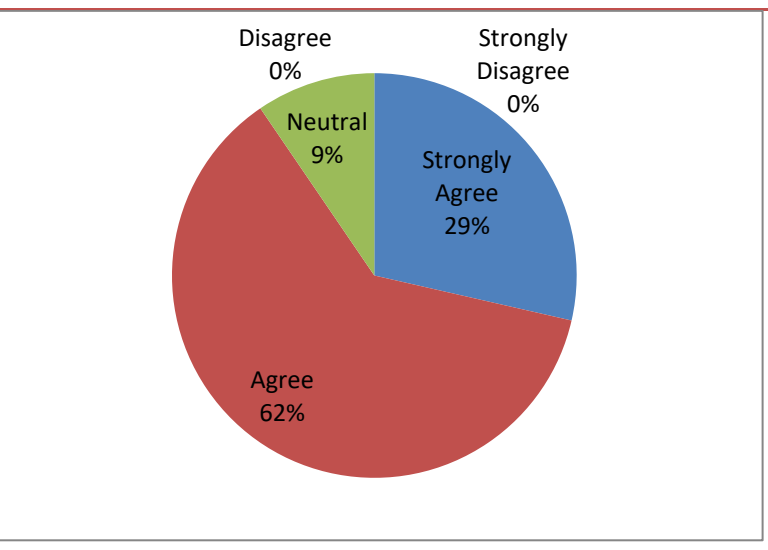
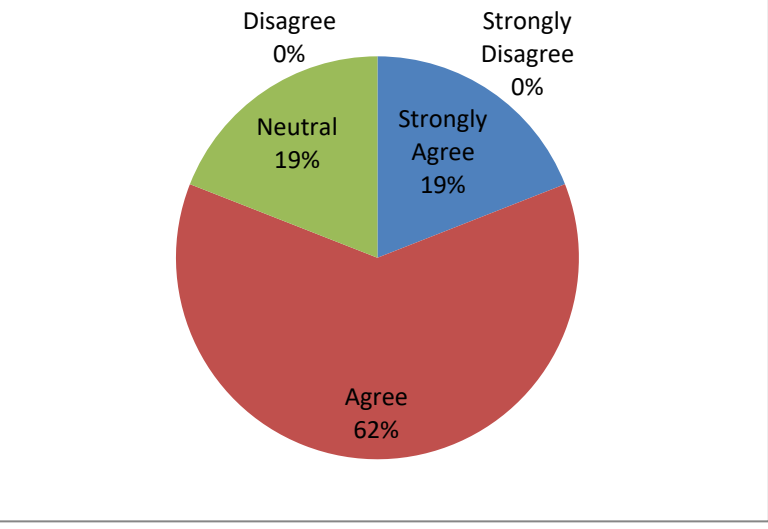
Teaching and Learning Through Online Videos (Objective:3)

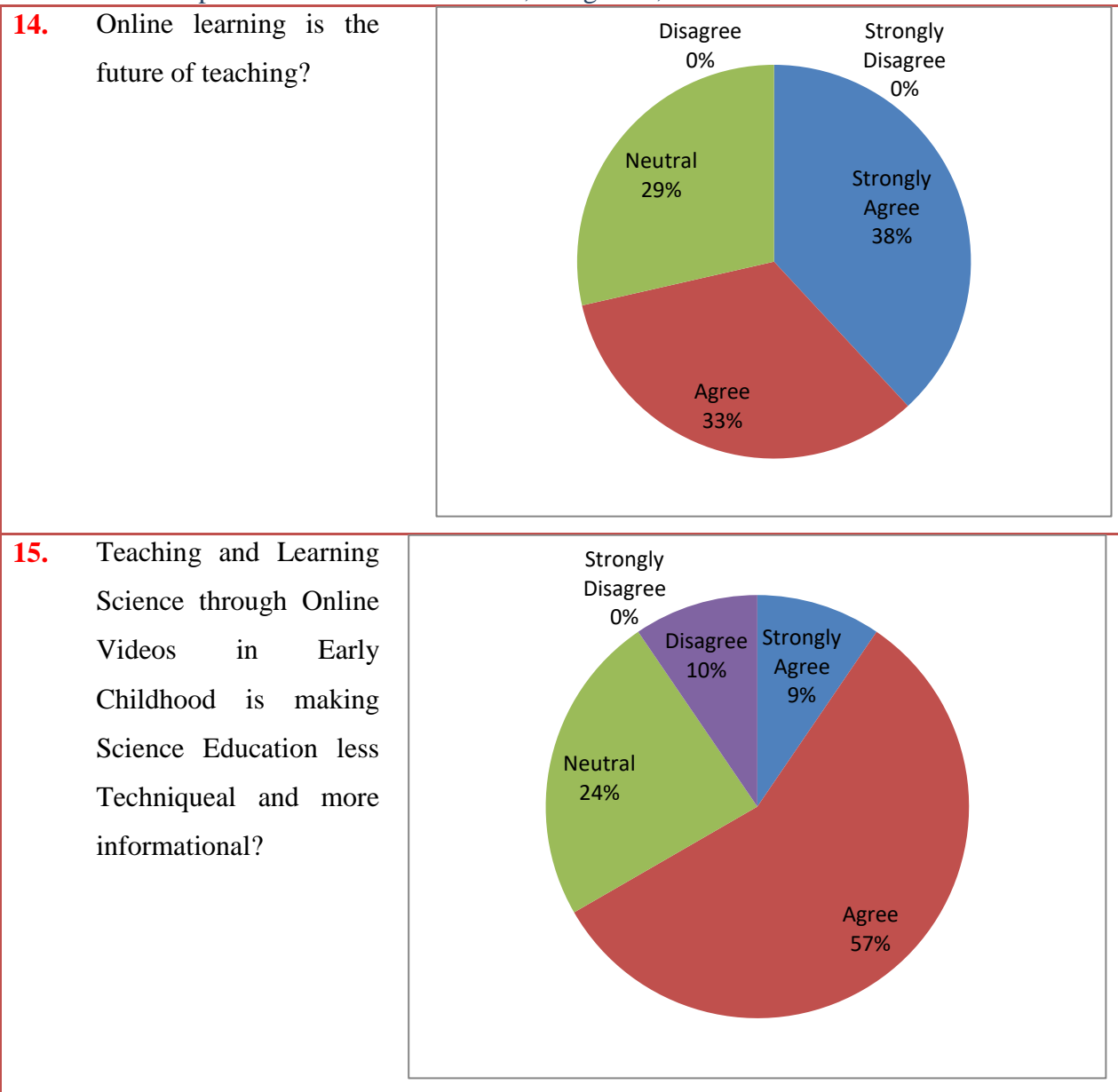
7. Science based educational videos changed the pattern of science learning among children?



1. Watching Science based cartoons and videos can change the learning aspect of a child?

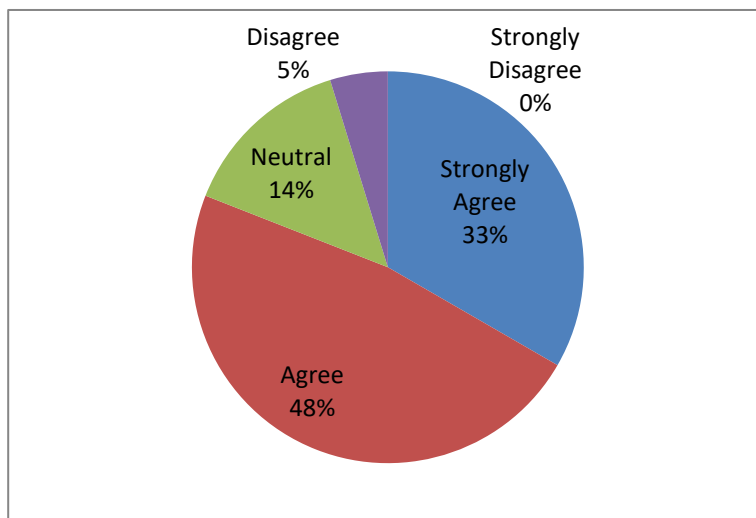


<p>1 Online videos on science and other subjects should be encouraged to teach a child in school?</p>	 <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Agree</td><td>81%</td></tr><tr><td>Neutral</td><td>10%</td></tr><tr><td>Strongly Agree</td><td>9%</td></tr><tr><td>Disagree</td><td>0%</td></tr><tr><td>Strongly Disagree</td><td>0%</td></tr></tbody></table>	Response	Percentage	Agree	81%	Neutral	10%	Strongly Agree	9%	Disagree	0%	Strongly Disagree	0%
Response	Percentage												
Agree	81%												
Neutral	10%												
Strongly Agree	9%												
Disagree	0%												
Strongly Disagree	0%												
<p>12 Do you think teaching has been evolved through smart classroom teaching?</p>	 <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Agree</td><td>62%</td></tr><tr><td>Strongly Agree</td><td>29%</td></tr><tr><td>Neutral</td><td>9%</td></tr><tr><td>Disagree</td><td>0%</td></tr><tr><td>Strongly Disagree</td><td>0%</td></tr></tbody></table>	Response	Percentage	Agree	62%	Strongly Agree	29%	Neutral	9%	Disagree	0%	Strongly Disagree	0%
Response	Percentage												
Agree	62%												
Strongly Agree	29%												
Neutral	9%												
Disagree	0%												
Strongly Disagree	0%												
<p>13. Mobile and Internet boom is changing the world of teaching?</p>	 <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>Agree</td><td>62%</td></tr><tr><td>Strongly Agree</td><td>19%</td></tr><tr><td>Neutral</td><td>19%</td></tr><tr><td>Disagree</td><td>0%</td></tr><tr><td>Strongly Disagree</td><td>0%</td></tr></tbody></table>	Response	Percentage	Agree	62%	Strongly Agree	19%	Neutral	19%	Disagree	0%	Strongly Disagree	0%
Response	Percentage												
Agree	62%												
Strongly Agree	19%												
Neutral	19%												
Disagree	0%												
Strongly Disagree	0%												



16. Teaching and Learning

Science through Online Videos should be encouraged in school setup?



Based on the above facts, it can be stated that online videos are most relevant for teaching and learning in early childhood. The above facts proved the relevance of teaching and learning through online videos. Online teaching learning is the future of education and it should be adopted and encouraged in every educational setup.

4. DISCUSSION AND CONCLUSION:

A baby starts learning about the world around them in the very first moment of his or her life in the world (In prenatal stage). Neurological research established the fact that early childhood years plays a pivotal role in the brain development of a child. The early experience of a child deeply touches and affects their physical, emotional, social and cognitive development. Moreover, their first learning experience is also connected with their early upbringing. So, early years of a child need to be shaped in a way; so that they can contribute to build a better society with an advanced understanding. Parents and teachers are the early educators of a child. They believe that audio-visual learning Techniques are important for a child’s brain development and make them a quick learner.

Today, we are living in a world of innovation and growing scientific inquiry & literacy among each part of the society. Online content becomes an inevitable part of the world and it has changed everything. In the case of early childhood, science communication and scientific learning become an essential domain for child's early thinking and belief building. It is scientifically proven that in the early childhood science communication build the future understanding, important skills of learning and attitude formation of a child. Audio-Visual learning Techniques and online teaching-learning environment is become the need of the time.

Based on the above facts three research questions were formulated. The first research question of this paper which states 'how digital technology is becoming an important part of learning in early childhood?' This findings of this paper established that audio-visual learning Techniques can help a child to learn fast and mobile is moderately important as a learning devise. Digital access can make a child quick learner and online videos are very important part of learning new things in the innovative way.

The second research question was 'Is technology changing the teaching pattern of science?' the result of this research found out that quality science communication is important for brain and curiosity development of a child in early childhood. In this age, proper guidance is needed to enhance the potential of a child's mind. Also, online videos are most relevant for teaching and learning in early childhood. Science communication in early childhood through online videos is a positive step to take for the development of a child's brain.

The third research question demands to identify the relevance of teaching and learning through online videos. This research found out that online videos is most relevant for teaching and learning in early childhood. This fact proved the relevance of teaching and learning through online videos. Online teaching learning is the future of education and it should be adopted and encouraged in every educational setup.

Limitations: This research was limited to Delhi only with smaller sample size. There is a need of research on larger scale to find out the nearest result of the above stated research questions.

5. REFERENCES

- [1] Zeece PD., *Things of nature and the nature of things: Natural science-based literature for young children. Early Childhood Education Journal.* 1999 Mar 1;26 (3):161-6.
- [2] Duckworth E., *The having of wonderful ideas. Harvard Educational Review,* 1972 Jul 1;42(2):217-31.
- [3] Raffini JP., *Winners without losers: Structures and strategies for increasing student motivation to learn. Allyn & Bacon, 160 Gould Street, Needham Heights, MA 02194.;* 1993.
- [4] Lind KK., *Science in Early Childhood: Developing and Acquiring Fundamental Concepts and Skills.*
- [5] Zeece PD., *Things of nature and the nature of things: Natural science-based literature for young children, Early Childhood Education Journal,* 1999 Mar 1;26(3):161-6.
- [6] Zeece PD., *Things of nature and the nature of things: Natural science-based literature for young children. Early Childhood Education Journal,* 1999 Mar 1;26(3):161-6.
- [7] Worth K., *Science in early childhood classrooms: Content and process. Early Childhood Research & Practice,* 2010 May; 12(2):1-7.
- [8] Wilson R., *Promoting the development of scientific thinking. Early childhood news,* 2002.
- [9] Conezio K, French L. *Science in the preschool classroom. Young children,* 2002 Sep;57(5):12-8.
- [10] Lind KK., *Science in Early Childhood: Developing and Acquiring Fundamental Concepts and Skills.*
- [11] Lind KK., *Science in Early Childhood: Developing and Acquiring Fundamental Concepts and Skills.*
- [12] Lind KK., *Science in Early Childhood: Developing and Acquiring Fundamental Concepts and Skills.*
- [13] Chaille C, Britain L. *The young children as scientist (3. bs.).*
- [14] Simandan D. *Introduction: Learning as a geographical process. The Professional Geographer.* 2013 Aug 1;65(3):363-8.
- [15] Bandura A. *Social learning theory of aggression. Journal of communication.* 1978 Sep;28(3):12-29.