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ARTICLE

# Science Communication in Early Childhood through Online Videos

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**ABSTRACT**

We are living in a world of innovations and growing scientific inquiry & literacy among all segments of the society. Online content has today become an inevitable part of our lives. In early childhood, science communication and scientific learning is essential for developing children's early thinking process and future understanding, impacting skills of learning and attitude formation of a child. The social learning theory suggests that people learn from each other via observation and by 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 favour 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

## Introduction

Learning science starts early 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. These things come to them naturally while playing. Teachers and parents do not need to convince a child to think 'science is fun'. Learning science can be fun for children if they get proper guidance in terms of learning science through games and other media. 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. It is worth exploring how online learning techniques are contributing to the early learning of children and helping them to be more curious and creative.

## Early Childhood and Science Learning

Scientific digital literacy has become an essential tool for learning and overall development. A young child needs a proper foundation to develop this skill. It can happen through early elementary training. In 1999, Zeece described the fact that formal science education is lacking in the real world because it can't be called 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 start thinking in a scientific way even before going to school [5].

**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 becomes 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.

A teacher plays a crucial and critical role in science learning in early childhood. 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 tools of development. However, such activities should not be restricted to just teaching counting and colour and shape recognition to the children but it should be directed to make them more curious and engaging in the informative activities which enhance their scientific inquiry. Teaching science in early childhood is an art that the teacher needs to master to make children better learners. If a teacher is not aware of scientific activities then he or she will never be able to make science a fun subject for children.

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

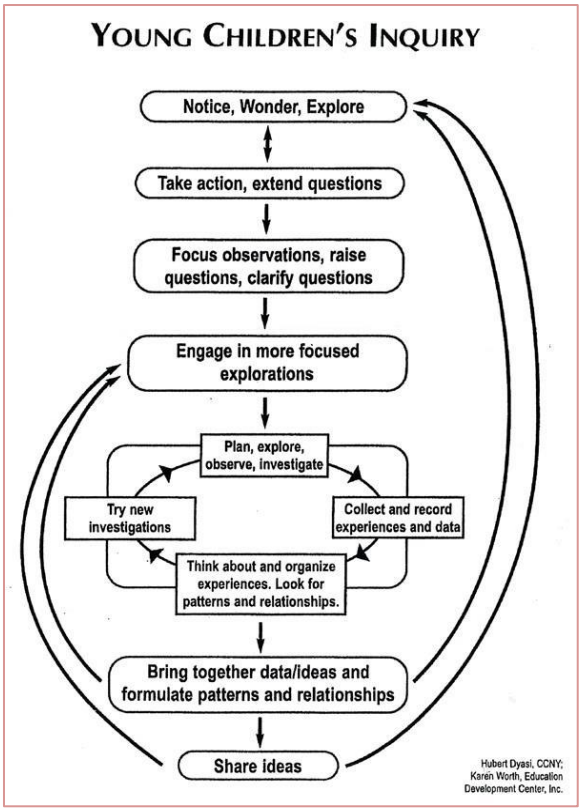



**Figure 1: Hubert Dyasi, CCNY; Karen Worth, Education Development Center, Inc.**

## Teaching "Sciencing"

In early childhood, children can be introduced to the art of "Sciencing". Sciencing can be defined as active involvement in science and the involvement should not be restricted. It should natural 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.

Science curriculum teaching goals emphasise on 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 concepts in science [9]. A teacher needs to be aware of these facts and incorporate them into the teaching techniques. 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. For children's science learning, the important factors are problem-solving and reflective thinking [11]. The "constructive" approach of understanding early childhood education argues that children construct knowledge instead of knowledge being transmitted into a child's mind. According to this approach children are considered as "intellectual explorers" [12]. So, it can be assumed that children learn from their native environment. The young mind develops its own theories and creates its own complexes [13].

## Science Learning through Online Videos

Online videos are engaging in nature and entertaining in presentation. Through online videos children engage their minds to the utmost level and so the percentage of learning increases because of complete involvement. 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.

## Research Questions

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

## Theoretical Framework

- **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 suggests that people learn from each other via observation and imitating others [15]. Therefore audio-visual technique helps a child to learn fast.
- **Technological Determinism 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 defining 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 has become equally important in the field of education. Every child is exposed to the mobile and the online world. This is affecting their early learning process too.

## Research Design

- **Approach:** A quantitative research approach has been adopted for this study. This approach is based on factual data collection.
- **Sample Universe:** Pre-Nursery and Primary teachers and parents of 3-8 years old residing in Delhi were 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 questionnaire containing 20 questions was prepared to collect the data. Five questions were related to their age, gender, profession, marital status and city where they live; remaining questions were related to online videos,

science communication, classroom teaching etc. Likert scale was used for the options i.e. strongly agree, agree, neutral, disagree and strongly disagree.

- **Data Analysis:** Data was analyzed based on the percentage calculation of each question for achieving the objectives 1, 2 and 3.

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

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

Online data collection technique was used to collect the data. An online survey was conducted among Delhi's teachers and parents (above 20) using Google forms from 16 August to 31 August 2018. The selected sample received a link of the survey's URL through an email and on WhatsApp 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 the survey. Out of 48 samples, 21 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.

## Result

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.

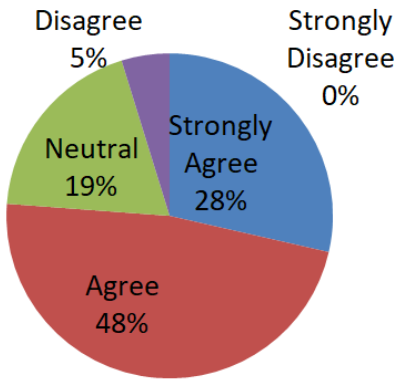
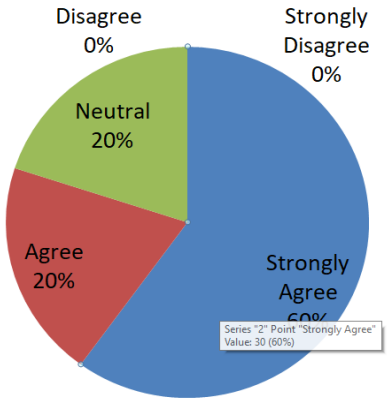
### Objective One: To know the importance of science communication in early childhood.

On the question of importance of proper science communication in early childhood for curiosity development, 28% strongly agreed on the fact that science communication is certainly

important for curiosity development in a child; 48% agreed and 19% were neutral on the importance of quality science communication in early childhood.

On the question of importance of science learning for the brain development of a child, 60% strongly agreed while 20% agreed and 20% were neutral (Table 1).

**Table 1:**
**(Objective 1): Importance of Science Communication in Early Childhood**

| | | |
|---|---|---|
| **1.** | Proper science communication is most important to develop curiosity in a child's mind? |  |
| **2.** | Science learning is important for a child's brain development? |  |

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.

**Objective Two: To find out the importance of audio-visual learning techniques.**

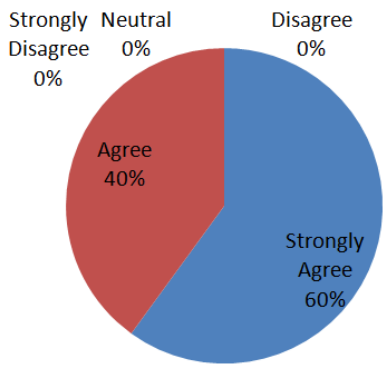
On the question whether audio-visual learning techniques can help a child to learn fast, 60% population strongly agreed and 40% agreed on the fact that online learning can help a child to learn fast.

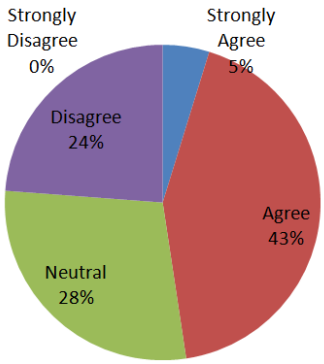
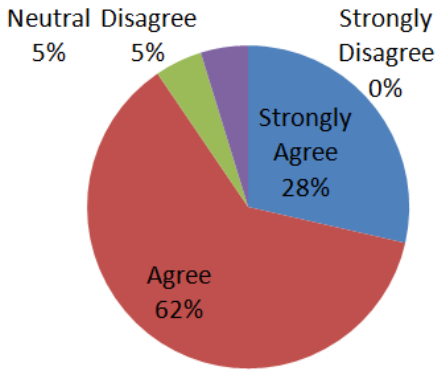
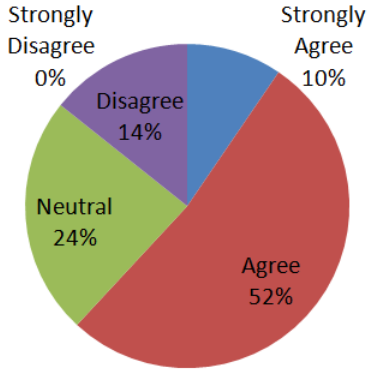
On the other hand, the population has a different point of opinion when it comes to mobile communication importance in science education. 43% agreed while 24% did not agree on this statement. 43% population agreed on the importance of mobile communication as learning devices in early childhood, while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

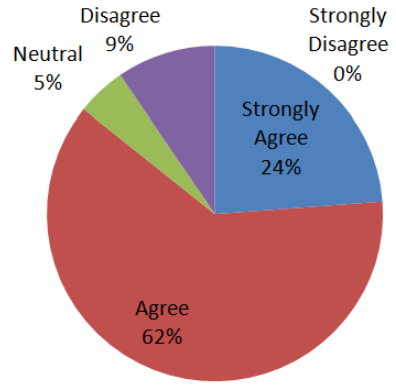
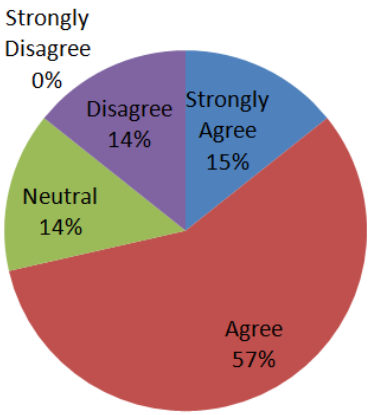
When the question of the importance of audio-visual techniques for learning arises, 62% agreed on this while 28% strongly feel audio-visual techniques help a child to learn the fact. Moreover, digital access is making children quick learners; 62% population agrees on that and 14 % disagree. On whether 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 has become an important tool of teaching science to the children in school in early ages? |  |
| **3.** | A child can learn fast through online videos and audio-visual technique? |  |
| **4.** | Mobile and Internet access in the early age are 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 a quick learner and online videos are important part of learning new concepts.

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

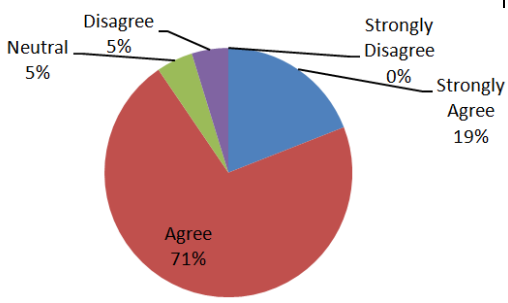
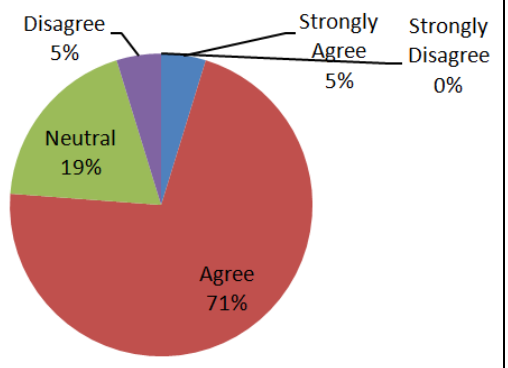
When the question of the relevance of teaching and learning through online videos was asked, the respondents gave one-sided responses (mostly positive). 71% agreed that science learning is changing due to online videos and digital boom. 71% population strongly agreed on this statement. 81% said yes and agreed on the

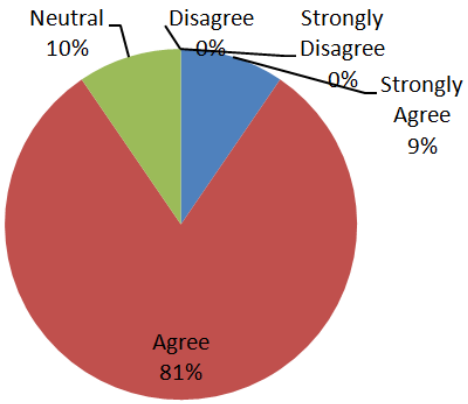
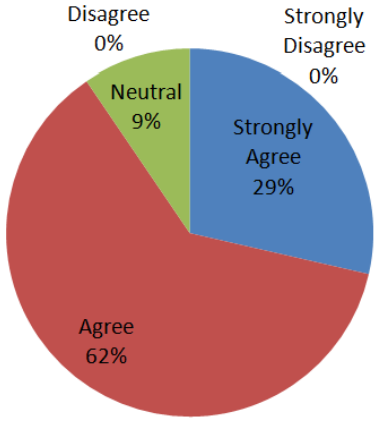
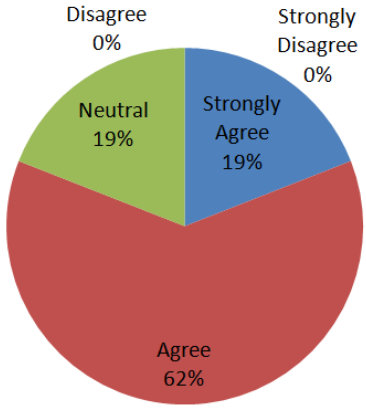
statement that online videos need to be encouraged for teaching purpose. Smart classroom has helped teaching to evolve: 62% population agreed on this statement. Mobile and internet boom has changed teaching, 62% strongly agreed on this.

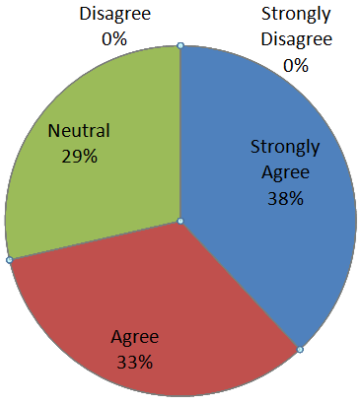
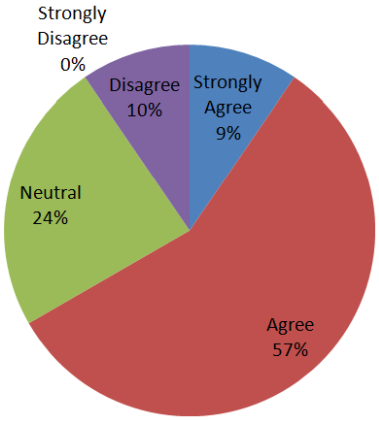
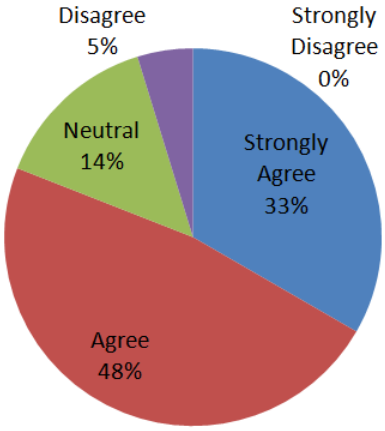
On the question of the future of online learning the respondents were almost equally divided into strongly agree (38%) and agree (33%). On whether online teaching is making science education more fun, 57% said yes (Agreed) but 10% did not agree. On whether online learning should be encouraged in a school set up, 48% said yes it should be encouraged in school setup. While 33% said it must be, 5% think it's not important (Table 3).

**Table 3:**

**(Objective 3): Teaching and Learing Through Online Videos**

| | | |
|---|---|---|
| **1** | Science based educational videos changed the pattern of science learning among children? |  |
| 2. | Watching science based cartoons and videos can change the learning as pect of a child? |  |

| | | |
|---|---|---|
| 3. | Online videos on science and other subjects should be encouraged to teach a child in school? |  |
| 4. | Do you think teaching has improved through smart classroom teaching? |  |
| 5. | Mobile and Internet boom is changing the world of teaching? |  |

| | | |
|---|---|---|
| 6. | Online learning is the future of teaching? |  |
| 7. | Teaching and learning science through Online Videos in early childhood is making science education less technical and more informational? |  |
| 8. | 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 prove 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.

## Discussion and Conclusion

Neurological research has established the fact that early childhood years play 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 that they can contribute to build a better society with an advanced understanding. Parents and teachers are the early educators of a child. 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. Online content has become an inevitable part of our lives and has changed everything. In early childhood, science communication and scientific learning become essential for the development of the child's early thinking. Audio-visual learning techniques and online teaching-learning environment are becoming the need of the time.

The findings of this paper have established that audio-visual learning techniques can help a child to learn fast and that the mobile is moderately important as a learning device. Digital access can make a child a quick learner and online videos are very important for learning new things in an innovative manner.

This research also found that quality science communication is important for brain and curiosity development of a child in early childhood and that 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.

## Limitations

This research was limited to Delhi only with smaller sample size. There is a need for research on a larger scale.

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