



Journal of Archaeological Studies in India

Vol. 2, No. 2, 2022, pp. 73-82
© ARF India. All Right Reserved

URL: <http://arfjournals.com/jasi>

<https://doi.org/10.47509/JASI.2022.v02i02.02>

Emergence and Evolution of Communication Technology; Historical and Archaeological Analysis

SEEMA PARIHAR

Assistant Professor, Deptt. of Humanities and Physical Education, CT University, Ludhiana Punjab. E-mail: seemaparihar17273@ctuniversity.in, simiparihar@yahoo.co.in

Abstract: *The entire history of the world came into persistence through the growth of communication technology because it is the communication only through which the ideas and inventions float in the universe. Communication in simple words is an act of transferring information from one person to another, from one place to another and from one institute to another. It has been referred in ancient India as Sadharanikaran or generality, involving Sahridayas or people having universal caring heart to each other, as to communicate each other besides in need, the sahridyas or sympathetic i.e. compassionate heart is necessary. It also refers to 'sampreshan' or 'conveyance' to convey the thoughts. This confirms that in the earliest stage of history messages were conveyed properly from the 'source' to the 'receiver'. The Vedas, Upanishads, Aryanakas, Brahmans, Purinas and Dharmas hastras are the fraction of communication in ancient world. Ancient Indian literary works like Charak Samhita and Mrichhkatika also lays the rules for debates and discussions dividing it into 'friendly' and 'hostile' discussion. It was the development of science and technology in ancient India through which communication skills were also developed. It was the time, when people were observing, learning developing and adopting the existence of creative science in their day today life schedules. Ancient view of the physical world, including those on space and time, continued to wear metaphysical, sometimes even religious-philosophical garb on different intellectual lines as well.*

Keywords: *communication, simplification, astronomy, pictographs, Paleolithic.*

Received : 25 July 2022

Revised : 29 August 2022

Accepted : 11 September 2022

Published : 27 December 2022

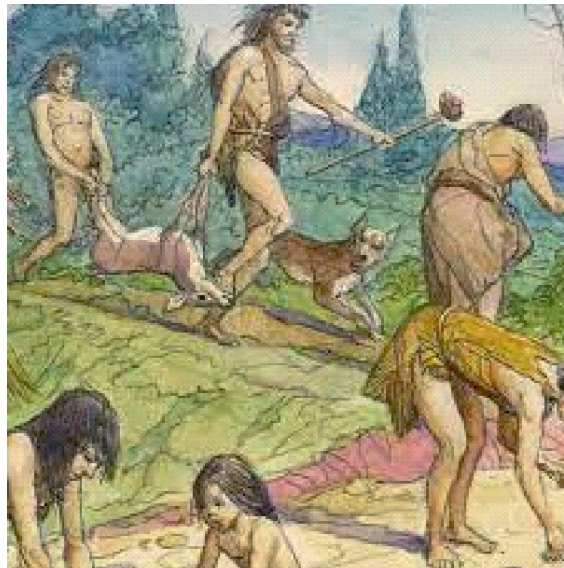
TO CITE THIS ARTICLE:

Seema Parihar 2022. Emergence and Evolution of Communication Technology; Historical and Archaeological Analysis. *Journal of Archaeological Studies in India*, 2; 2, pp. 73-82. <https://doi.org/10.47509/JASI.2022.v02i02.02>

Introduction

How depressing the human life had remained when there was no source of communications. History of communication was as old as the human civilization had been. First means of communication was no doubt the human voice itself. However, after the invention of writing system, great changes had occurred, when an appropriate writing system invented in Mesopotamia, Greek and Egypt. Since

prehistoric times, significant changes in communication technologies i.e. media and appropriate inscription tools have evolved in tandem with shifts in political and economic structure in the society and by expanding systems of power. Communication can range from very slight procedure of exchange, to full conversations and mass communication. Human communication transfigured with the origin of speech around 500,000 years ago. What the man used to do, when there was no voice? Answering this we can find that the people used to communicate through symbolical languages. After frittering hundreds of years alone in the woods, taking shelter in the caves they started to live in the group and made communities. They became dependent as well as helpful to each other and developed hunter gatherer societies. **(Picture 1).**



(Picture 1: Hunter gatherer without spoken languages)

Source: <https://www.google.com/search?q=pictures+of+hunter+gatherers+in+ancient+India>

But till then no spoken language had been discovered. Though many other sources of communications were there but there was no communication without voice. Initial discovery of men as mark of communication were sign languages this, the human created symbols for communication. There are evidences that symbols of writing were developed around 30,000 years ago.

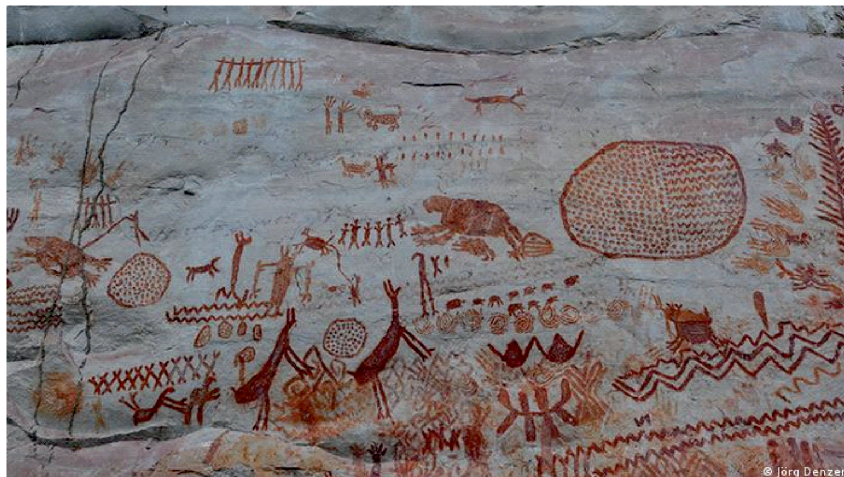
It was the imperfection of speech, which even so allowed easier dissemination of ideas and motivated discoveries, eventually resulted in the creation of new forms of networking systems, improving both the range, on which people could communicate. All of these inventions were based on the key concept of the symbols. With the growth of civilization, the one person tried to convey his /her thoughts to many persons, and gradually became the part of civilized world. It was the period of early Stone Age when man was living in natural shelters or caves.

The next stage in the progress was of man in India was when the use of the rough stone implements was not quite discarded, but most of them were carefully polished. With the growth of science and technology, the communication expertise was also developed. Some of the ancient view of the physical world, including those on space and time, sustained to wear metaphysical, sometimes even religious-philosophical array on different scholarly lines. In this connection, they used the methods of '*sadharanikaran* or simplification.' "The term '*Sadharanikaran*' literally means simplification or generalization. Theoretically, it means achieving oneness or commonness through sharing thoughts and ideas and comes close to.

As for the word communication it is derived from the word ‘communis’ a Latin word and its modern English version is communication. It is the science of sharing ideas, thoughts, opinion, judgment, belief and feelings after generalizing them and brings the people closer.

A study done on the Indian idea of communication, the sages or the ‘*risis*’ were the creators of this media or communication system. It considers that the Natyashastra of Bharat Muni as the treatise is full of ideas on healthier communication or the philosophy of communication. Natyashastra was written by ‘Bharat Muni’ in about 2nd century BCE. In the plays of ancient India, pigeon mentioned as used for communication, because of their homely habits. Frontlines said that Julius Caesar used pigeons as messengers in his conquest of Gaul. In this text too, communication has been referred to as the same or *sadharanikaran* generality, involving *sahridaya* or common heart and people having common sympathetic heart to each other and share their beliefs on common problems or thoughts with them. Two or more persons or two or more institutions needed for the better communication, as source and receiver. Communication needs both. In this ideology, one is the source and the other is the receiver. It clears that the messages had been conveyed properly from the source to the receiver. Charak Samhita also put down the rules for debates and discussions separating it into friendly and hostile conversation in groups. These groups and assemblies also put it in records into two diverse clusters of wise and ignorant people. In the idea of communication the wise were the source and the ignorant were the receiver, for whom the ideas or principles arranged. There were some specific rules, which lay to communicate with both groups. Through the means of communication, these rules continued to flow from one group to another, from one civilization to other and from the one world to another. In the prehistoric period, these ideas used to communicate through oral traditions. The Vedas, the Brahamans, Aranyakas and Upnishadas, all were the part of oral traditions or the tradition of ‘*guru*’ ‘*shishya*’ i.e. through the recitation of *mantras*, the teacher conveyed his thoughts to his disciple and the latter to their next generation and thus kept the tradition alive from generation to generation.

In the later period of history, the spoken practices gave approach to written material on copper plates, on the other hands on barks and on vegetation and ultimately using paper by 12th and 13th century C.E. It was also taken that through verses and hymns, they turned to beautiful prose explaining universal actions like natural world, flora and fauna, astronomy, mathematics, medical science, technology and Agriculture in written or pictured methods. **(Picture 3)** Further these traditions passed on from one generation to the next in glowing knit methods.



(Picture 3 explaining universal activities)

Source: <https://www.google.com/search?q=rock+paintings+of+ancient+india&tbm=isch&ved=2ahUKEwirj7>

Our ancestors have outshined even in the communication skills is amply apparent from the old texts where not only complex philosophical ideas but also the mathematical equations and medical prescriptions had been given through enchanting verse and doggerels methods. There are five doctrines of the Indian idea of communication. The first principle is that the party involved in communication should wear *Sahridaya*– that is having common sympathetic heart with each other, as it increases the quality of communication or make the communication positive. It hypothesizes is that the greater the identification, the greater is the success of communication? Here the stress is on sharing for making it a more understated, delicate and effectual instrument of persuasion. Therefore, the second tenet of *sadharanikaran* or simplification is ‘allocation ‘or conveying those prescribed principles. The third tenet or view is *Rasa Utpathi* along with *Rasa Aswadan* or the origin of artistic enjoyment because of communication. *Rasa* is feeling of aesthetic pleasure. The communication must be competent to arouse permanent contentment and organized system of association. Bharat Muni and the other sages offered the mantras to fire, before they used these for their own consumption. Because of this, the *Yajna* and the kitchen technology had developed side by side. In the later period the animal like horse, cow, goat and sheep became the co-members of the family of the fire-age. Man learnt the use of the hide or conceal of the dead animals leading to the primitive art of tanning. Through the communication structure, this practice became the division of society. Gradually, they learnt to use the natural fibers to extract from the plants and same way of the hair of sheep and goat. It gave birth first to the art of weaving and then to that of spinning. In Vedic verses and the Satpatha Brahmana, we have references to some of the articles and mechanical devices with the family member to these, as well as to sacrifices. It was childhood of the technology, where both communication and the technology or the art of living or glorious survival was mounting steadily. Not even this; ancient people learnt the language of setting the symbols on walls of caves or large stones. It is found from the archaeological evidences where ancient pastoral people had left some impression on walls to their next, sometime to make them aware about the danger of the region. Even it is also considered that these rock paintings are made in the period when people were having no other source of communication but they wanted to convey their messages and they used to convey through inscribing pictures of the scenes they saw or activities they had done. (Picture 4 source: google)



Picture 4 (Ancient methods of conveying messages)

In India, the script of Indus Valley is the earliest writing system and was developed by the people of Indus Valley as the earliest form of writing known in the Indian subcontinent. The origin of this script is pathetically understood. This writing system remains un-deciphered and there is no array of the language it represents, even no bilingual texts have been found thus far.

The Vedic texts are available in the form of four *Samhitas*, the '*Rig-Veda*' with 1028 hymns and 10552 verses classified in ten *Mandals* or eight *Astakas* and *Adhyayas*. Each *Astaka* contains eight *Adhyayas* or lessons. The second Veda is the *Sma* or *Samveda* and is divided into two books. *Purvacika* or the first part has 585 verses and *Uttaracika* has 1290 verses. The third Veda is the *Yajurveda*. '*Yajurveda*' or '*Vajasaney Samhita*' has 40 chapters and 1975 verses. Then the fourth or the last one is the *Atharvaveda*. In this, there are 20 chapters with 5987 verses in all. Besides this, there were 17 '*Brahmanas*,' out of 10 *Kandas* of *Satpath Brahmana*. Nevertheless, communication system in world had started in revolutionized way even thousands of centuries before. *Upanishad* is the part of *Vedas*, which contains some important topics of *Vedas*. In the literary words, it means to listen while sitting nearby the teacher or guru. Thus, Indian Vedic literature is based on the tradition of *guru* (Teacher) *sishya* (student). When there was no writing system, the teacher used to teach or convey his philosophy his student, who further used spread it in the society. With the passage of time, the system changed and people had discovered another ways of communication. In India, we find the following ways of communication through which ancient people stepped towards the civilized historical period:

Cave Paintings

Cave paintings are also known as parietal art. These are the paintings, painted by the ancient people on the walls or on ceilings. The oldest identified symbols created for the purpose of communication were cave paintings. It was a form of rock art dating to the Upper Paleolithic age. The oldest well-known cave painting is located within Chauvet Cave which is dated to around 46000 BCE. to 30000 BCE. These paintings contained increasing amounts of information. The most important findings of these cave paintings are that these were not painted in living areas or in the middle of habitations, but in the cave chambers at silent places. It is also supported that through these paintings people must have created the earliest calendar as far back as 15000 years ago. The correlation between drawing and writing further shown by linguistics in Ancient Egypt and Ancient Greece the concepts and words of drawing and writing were the same. Almost, all early painting in India survives in caves, as very few buildings from Ancient India survive, and though these were probably often painted but the work has been lost. The history of cave paintings in India beginning around 30000 to 29000 BCE in the caves of Central India, typified by those at the Bhimbetka Rock Shelters to elaborate frescos at sites such as the rock-cut artificial caves at Ajanta and Ellora, extending as late as the 9th -11th century C.E.

The word *Petroglyphs*, is taken from the Greek word *petro* and *glyphs*. *Petro* is the form of *Petra*, which means stones and *glypho* means to carve. The next progression in the history of communications came with the production of *petro glyphs*, carvings into a rock surface and it took about 20000 years for *Homo sapiens* to shift from the first cave paintings to the first *petro-glyphs*. These are dated to approximately the Neolithic and late Upper Paleolithic boundary and about 12000 to 10000 years ago.

It is also possible that humans of that time used some other forms of communication, often for mnemonic purposes-specially arranged stones, symbols carved in wood or earth, quipu-like ropes and tattoos. A little other than the most durable carved stones has survived to modern times and we can only speculate about their existence based on our observation of still existing 'hunter-gatherer' cultures.

Pictograms

It is a type of record, which consists of pictorial symbols, in form of dots, figures and lines. In ancient form, it is a prehistoric cave drawing or a graph, with sign of figures. A pictogram (pictograph) is a symbol in place of a concept, object, activity, place or event by illustration. Pictography is a form of proto-writing whereby ideas pass on through drawing and pictures. Pictographs were the next step in the growth of communication: the most significant difference between petro glyphs and pictograms is that petro glyphs are purely showing an event, but pictograms are telling a story about the event. Thus, they can be ordered chronologically. Pictograms were used by various ancient cultures all over the world since around 9000 BCE, when tokens marked with simple pictures began to be used to label basic farm manufacture, and become increasingly popular around 6000–4000 BCE.

There is little evidence of ancient forms of writing around the world. If confirmed as a form of written communication, the Turkish pictographs could replace Sumerian—a language used in Southern Mesopotamia in 3100BCE—as the world’s oldest known writing provides reports. Archaeologists also found monumental T-shaped pillars of stone some up to 18 to 20 feet tall. In total, approximately 200 such pillars were discovered in around 20 circles.

The team of experts believe that the site at Gobeklitepe—one of several temple-like structures unearthed in the region—had religious significance to its ancient inhabitants and they had left specimens of their art work or the their personal safety. Some written languages are unknown and unidentified but symbols of communication technology.

Several millennia were crossed, people still communicate through using images. The modern day pictograph—the *emoji*—relics as popular now, as it was 12000 years ago. Pictograms were disconnected and fragmented drawings of fundamental objects and ideas such as men, woman, fire, food, tree, and shelter are there for newly discovered ideas. These were combined to form stories, songs, and epics. The seals found from ancient sites and rocks are engraved with some geometrical designs are the examples of this art. **Picture: 5**



Picture: 5 Cave Art (pictured messages left for others)

Source: <https://www.google.com/search?q=cave+art++in+ancient+india&tbm=isch&ved=2ahUKEwiLrtCm34T4AhW0umMGHfAdDwEQ2-cCegQIABAA&oq=cave+art++in+ancientindia>

Ideograms

Ideograms are a graphic symbol that represents an idea to symbolize a thing or a person not in form of a word but in a sign language. Pictograms evolved into ideograms, graphical symbols that represent an idea of some statements. Their ancestors ‘the pictograms’ could represent only something resembling their form: therefore a pictogram of a circle could represent a sun, but not concepts like heat, light, day or Great God of the Sun. Ideograms on the other hand could convey more abstract concepts, so that for example an ideogram of two sticks can mean not only legs but also a verb to walk. **Picture: 6** such ideograms are still used in form of *emojis* in modern day’s mobile phones. All these symbols show feelings of a person normally in picture form, when a person is far away.



(Picture: 6 Ideographical proto-writing (Ancient and Modern))

Source: <https://www.google.com/search?q=harappan+seals+writing+&tbm=isch&ved=2ahUKEwixkYvs44T4AhWlpukKHevBCiIQ2-cCegQIABAA&oq=harappan+seals+writing>

Some ideas are universal and many different cultures developed similar ideograms. For example, an eye with tear means sadness in and smiling face means some joy able moment. In these there are Native American ideograms in California, as it does for the Aztecs, the premature Chinese and the Egyptians. Ideograms were ancestor of logographic writing system such as Egyptians hieroglyphs and Chinese characters.

Examples of ideographical proto-writing systems, thought not to contain language-specific information, comprise the Vinca script and the early Indus script. In both cases, there is maintaining of decipherment of linguistic comfortable, without wide acceptance.

Writing System

The oldest-known figure of writing was primarily logographic in nature, based on pictographic and ideographic basics. Generally, writing systems can be broadly divided into three categories: *logographic*, *syllabic* and *alphabetic* (or *segmental*); however, all three may be found in any given writing system in unreliable extent, often making it tricky to categories a system uniquely.

The discovery of first writing roughly is contemporary to the beginning of Bronze Age in late Neolithic in about 4000 BCE to 3500 BCE. The first writing system is in general believed to have been

invented in pre-historic Sumer and developed by the late 3000's 3000 BCE's into cuneiform. Egyptian hieroglyphs, and the undeciphered Proto Elamite writing system and Indus Valley script also date to this era, though a few scholars have issue about the Indus Valley script's status as a writing system.

The original Sumerian writing system was originated from a system of clay tokens used to represent commodities. By the end of the 4th millennium BCE, this had evolved into a method of keeping accounts using a round-shaped styles impressed into soft clay at different angles for recording numbers. This was slowly but surely augmented with pictographic writing using a sharp stylus to indicate what was being counted. Round-stylus and sharp-stylus writing was gradually replaced about 2700–2000 BCE by writing using a wedge-shaped stylus at first only for logograms but developed to include phonetic elements by the 2800 BCE. About 2600 BCE, cuneiform began to represent syllables of spoken Sumerian language.

The development in writing was depended on two stuffs; the availability of material and the subject of writing. As for the material the ancient people used the caves, stones, seals, cotton cloths, *tada patra*, *bhoja patra*, copper and silver plates and iron plates etc. In the earliest stage of writing, the subject of their writing was supernatural or *Aulokik* or spiritualism and the matters related to Gods, and his existence, supernatural forces and their existence and mystical things, which they expected to be happening in the near future. In the later stage of history, the subject changed to cosmic world or *Laukik*. Now they started to write about nature, bravery, love, romance and other happenings of materialistic world. Gupta period was first historical period, from where the people started writing of *Laukik* world.

Alphabets

The first unpolluted alphabets emerged around 2000 BCE, in Ancient Egypt but by then alphabetic principles had already been included into Egyptian hieroglyphs for a millennium.

Over the next five centuries, this Semitic alphabet (really a syllabify like Phoenician writing) seems to have spread north. In India, the Brahmi script was the earliest writing system. No doubt, some characters are found on the seals found from Indus Valley Civilization, which could not be interpreting until today. These are some type of pictographs. The earliest epigraphic inscription was on the Asoka's edicts in 3rd century BCE, were written in form of Prakrit in Brahmi script. Ancient abugida, which was a kind of alphabetic script was used by the Gandhara culture.

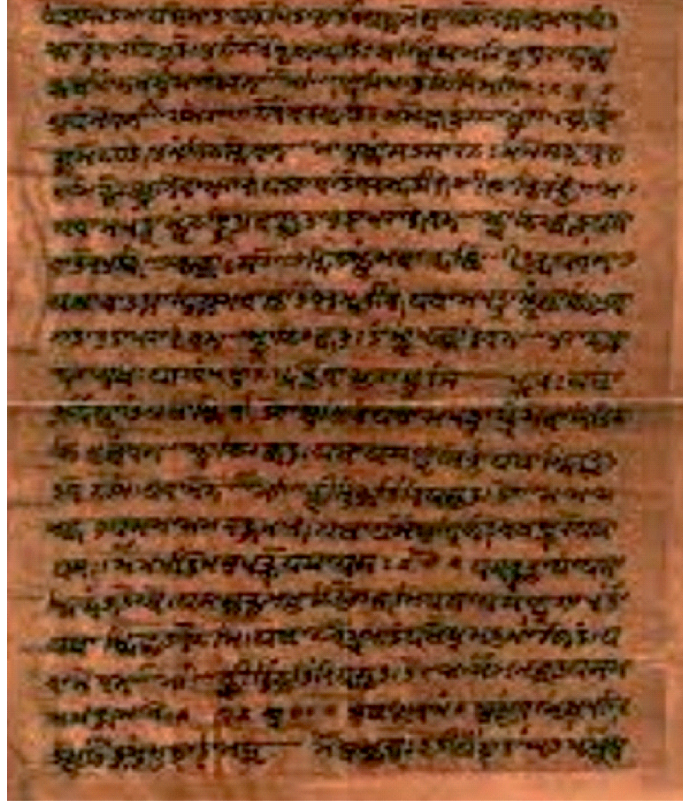
The First Written Languages

In the world's context, the written language appears to have come about around 1200 BCE. in China around 600 BCE. Some similarities between the early Mesopotamian language and the one that emerged in ancient Egypt suggest that a writing system was prevailed in the Middle East too. However, any kind of association between Chinese characters and these early language systems is less likely since the cultures don't appear to have had any contact.

With phonetic systems, symbols refer to spoken sounds. If this sounds familiar, it's because the modern alphabets that many people in the world use today represent a phonetic form of communication. Remnants of such systems first appeared either around 19th century BCE, thanks to an early Canaanite population or 15th century BCE, in relationship with a semiotic community that lived in central Egypt.

History of Telecommunication in India

History of Telecommunication is not that much old and in this context the transmission of signals over a distance for the reason of communication though began thousands of years ago, with the use



Picture 7: Earliest written languages

Source: https://www.google.com/search?q=proto+writings++in+ancient+india&tbm=isch&ved=2ahUKEwjzJ7c34T4AhVI_jGHfXeCeOQ2-cCegQIABAA&oq=proto+writings

of smoke signals and beating of drums for communication, in Africa, America and parts of Asia including India. While studying the caste system in ancient India, we find examples of beating of drums by *Chandalas* as a symbol of information before their entry in the town. In the later period or in 1790 the first fixed semaphore systems appeared in Europe, however it was not until the 1830 that electrical telecommunication structure started. Telecommunications in India began with the opening or discovery of the telegraph. The Indian postal and telecom sectors are one of the world's oldest forms of telecommunication. In 1850, the first experimental electric telegraph line was opened between Calcutta and Diamond Harbour and later in 1851, it was opened for the use of the British East India Company when they had started commercialization and trading in Indian subcontinent.

Thus the skill of communication has crossed a long journey from the dark caves of history where there was question of survival at the one place and to the present world of modernity where gaps of millions of miles are shortened by the means of communication. People are using all the means to communicate, the sign languages in form of emojis and pictographs and pictograms as well. In the past it was the need of time and at present sign languages is used to save the time.

References

- Tripathi, Rama Shankar, (1942), '*History of Ancient India*' Motilal Banarasidas, First Edition, Delhi.
- Derringer David, (1977). '*History of the Alphabets*'.
- Smith, Vincent A. (1980), *History of Ancient India*, Seema Publication, Delhi.
- Diringer, David, (1982), '*The Book Before Printing: Ancient, Medieval and Oriental*' Courier Dover Publications.

- Agrawal, D. P., Tiwari, Lalit, (1997), *'History of Technology' in India*, New Delhi: Indian National Science Academy.
- Lester, Paul Martin, (2005), *'Visual Communication with Infotrac: Images with Messages'* Thomson Wadsworth.
- The Invention of Writing*, (2012), Pandora.cii.wvu.edu. Retrieved.
- Peter, Burke, (2000), *'A Social History of Knowledge: From Gutenberg to Diderot'*.
- Paxson, Peyton. *'Mass Communications and Media Studies: An Introduction'* Bloomsbury, 2010
- Marshall, Poe, T. (2011). *'A History of Communications: Media and Society From the Evolution of Speech'* Cambridge University Press;
- Burke, Peter, (2012), *'A Social History of Knowledge' II: From the Encyclopedia to Wikipedia,*.
- Gliek, James, (2011), *'The Information: A History, A Theory, A Flood'*.
- De Mooij, Marieke, (2014), *'Theories of Mass Communication and Media Effects across Cultures'* in *Human and Mediated Communication around the World*, Springer.
- Frank, Esser, (2012), Thomas Hanitzsch, Eds. *'The handbook of comparative communication research'* Rutledge.
- Parihar, Seema, (July 2012), *'Bharat mein Lekhan Kala ka Vikas'* Giriraj, Suchana Evam Jan Samparak Vibhag, ISSN. 2454-9738.
- Jensen, Bruhn, (2013), Klaus Ed. *'A handbook of media and communication research: qualitative and quantitative methodologies'* Rutledge.
- Asa, Berger, Arthur, (2013), *'Media and communication research methods: An introduction to qualitative and quantitative approaches'* SAGE,
- Asante, Molefi Kete, Yoshitaka Miike, and Jing Yin, Eds. (2014), *'The global intercultural communication reader'* Rutledge.