

Uses and Effects of Information and Communication Technologies in Interpersonal Communication: A Study in Delhi

ABSTRACT OF THESIS

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1. Introduction

1.1 Introduction to the Research study

Information and Communication Technologies has a vast impact on our daily life, it has changed the whole scenario of the world. After the advent of smartphones, we are holding whole media as a device in our hands. We can say this media convergence has created a new type of society, which is thoroughly dependent on ICTs. The use of communication technology provides a new route for interpersonal communication. This study proposed to examine the uses and effects of information and communication technologies (ICTs) in Interpersonal Communication. The aim of this study is to investigate the role of communication technologies in interpersonal communication (formal and informal communication). It is observed that ICTs are playing a vital role in communication process. ICTs are helping people to maintain their social, professional and personal relationships. The research focuses on the use and effects of ICTs that are associated with interpersonal communication, which explored by exploratory, descriptive, and survey methods.

The study explored how ICTs are changing the tools and techniques of interpersonal communication and replacing face-to-face communication. This focuses on the reason behind the changes in communication patterns. The emergence of the digital age has shifted the communication method from face-to-face communication to computer or Smartphone mediated communication. Digital postures 🙋, gestures 👍 and facial expressions 😊 are the strength of the communication method (Turnbull, 2010). Interpersonal interaction involves using either verbal or nonverbal language to communicate messages and emotions between two or more people. Interpersonal communication is not just what is said, but it also, a tone of voice, facial expression, gesture and language of the body etc. By nonverbal behaviors, someone can communicate signals that display their attitude, facial expression and dress to make sense of the other's position and emotional status 😊. In nonverbal behavior, people use gestures, posture and expression to describe each other's position and emotional state (Turnbull, 2010). This ability provides a foundation from which symbolic communication can arise, but how such a transition would have taken place, which is not fully examined yet.

This study examines and explains how that transition occurred. In addition, it has been addressed the emergence of non-verbal cues in human communication and the uses and the importance of Non-verbal Cues (Emoticons and Emojis) in interpersonal communication. Further, it deals with the various paradigms of Non-verbal cues as universal languages. It explores the aspects of the non-verbal cues and perspective of the replacement of words and sentences during text communication.

The popularity of technology among users makes Non-verbal cues (emoticons and emojis) special and attracts academic attention. Some of these studies have focused on emoticons as an indicator of emotion, and some of them studied the effect of emoticons on the perception of text messages followed by email, online chat and instant messages, website message boards, and SMS. Others focused on gender differences in the use of emoticons. A few focused on how emoticons are used in naturally occurring online communication. No one study has done on emoticons as their new version as emojis in the Indian context. Apart from this, it has studied in the field of English, Sociology, and Computer Science. This is the first study done in the field of communication and in the Indian context.

This study examines the challenge, which we are facing in our linguistic structure like textisms and spelling variation. The study explores the various paradigms and aspects of textisms (lol, cu, kk, omg) as communication patterns. Research has explored the forms and functions in detail of textisms, mediated writing periphery, cultural transmission of text, and aspects of the linguistic corpus on text-based. Text communication has become quite a trend in communication. Some people use text communication to invite, to say goodnight or they love them, to avoid direct communication, to plan meetings, to connect with friends, family, and others (Leung, 2008). Higher education students frequently use text messaging for communication. The text message is simple, fast, convenient, and easy to use (Grinter & Eldrige, 2001). According to Perry & Lee (2007), “text messaging is displacing face-to-face communication” (Perry & Lee, 2007. p.74). Text messaging is used for convenience, especially among university students. It can also be an addiction. Text can be possible from anywhere, for example, while in the classroom, driving, in the movie theatre, in the school, workplace, etc. (Hemmer, 2009). Functions and usability are the most important determinants for IM (instant messaging) users in deciding their use. Instant Messaging has been found to be very helpful in the case of direct communication,

which is not easy or comfortable. More like informal face-to-face communications, Instant Messaging interactions are quick, fast, spontaneous, and contextual. The ability to enable synchronous communication in a distributed area is very appealing to its collaboration communication (Zhou, 2005). Besides this, it describes the commonly used textisms word and sentence based on related studies. It also explored the structure and construction of textisms and methods and techniques for constructing it.

The study also describes how the use of ICTs does affect individual behaviors. The study observed that spending a lot of time on the Internet could be a cause of anxiety, stress, loneliness and isolation. Nowadays, technology, especially the internet and social networking sites, has become an essential part of our life. Most people in the world today are using the internet and social networking site to connect and communicate at a large level. People are depending on the internet and social networking to maintain their relationships, shopping choices, job vacancies, good humor, educations, learning, making friends etc. More dependency affects human behaviors negatively and positively.

Further, this study also contributes to a detailed description of various behavioral change symptoms such as phubbing, FOMO, Nomophobia etc. which cause heavy and uncontrolled use of the internet and social networking sites. This research looks at the use and effects of the Internet and social networking sites (ICTs) on interpersonal communication. A review of the literature indicates that knowledge of related studies, theoretical framework and method of assessing the research, are focused on the uses and effects of ICTs during communication. The researcher has applied a mixed approach and survey method for data collection. The triangulation method has also been used as a source of data collection. The sample of this is taken from universities/institutes from Delhi. For the qualitative data, the researcher has conducted an in-depth interview.

1.1.1 Technology-Mediated Communication (TMC)

The use of advanced technologies, such as technology-mediated communication has led to the development of human communication. It has played an enormous role in the development of social communication amongst its other functions. TMC has enabled people to expand socialization beyond traditional communication methods. For example, this helps individuals to share ideas and emotions online. It also

provides opportunities to interact with other strangers online. In this study, the stipulated terms of Technology-Mediated Communication (TMC) refer to human communication, which done and facilitated by technological tools and applications, like talk on the phone, e-mail, social networking sites, text messaging, instant messaging, hypertext, textisms, and other Internet-based activities (online learning, shopping, and other forums).

1.1.2 Techlingo: A pattern or forms of Text Communication

"Techlingo" is technology-facilitated forms of text interaction, which is done by the communication devices. It a technology generated form of interaction. It includes all signs, symbols and pictographs, which made text interaction possible such as punctuations marks, commas, emoticons (: -)), emojis (😊), and stickers, animated and moving images. Besides, "Techlingo" is also a "generation text" or "morden text" of text-based interaction. It is a traditional form of shorts hands, which became in the technology era new patterns of Communication. In American accents, it is stylish and shortcuts forms of tech-languages. It is also a user-generated form of text communication. In this also includes Textisms and their various forms.

1.2 Motivation of the study

The researcher has experienced that ICTs are advanced and helping us in every aspect of our life. The advancement of technology is the motivation of the study. It is also based on the transformation of new modern and innovative methods for communication. The use of Internet-based Communication provides a new route for interpersonal communication. Through which people are maintaining their social relations and personal relationships.

Second, some researches revealed that Non-verbal cues are becoming a new language pattern of communication in the global world. It is replacing face-to-face communication. Third, different types of textisms styles that frequently used by the people during text messaging and instant messaging; and are becoming the language in the current time. All the above reasons are behind the interest and motivation of the researcher to select the research problem. In addition, changes in interpersonal communication techniques and the effect of ICTs on the behavior of individuals have also motivated the researcher for this study. Through this study, the researcher has

explored various ways and patterns of interpersonal communication, which are provided by the ICTs.

1.3 Research Problem of the study

Communication is an inborn quality, and important for society and social life. This is a universal feature of human beings. These days' people totally depend on ICTs for communication and other activities. The progress of ICTs is changing the methods and patterns of interaction and communication. This study has conducted to explain the uses and effectiveness of Information and Communication Technology in Interpersonal Communication. The purpose of this study is to examine how technology-mediated communication plays a role in our interpersonal relationships at a personal and professional level. Through this study, the researcher focuses on the role of phones, e-mail, instant messaging, text messaging, and social networking sites (Facebook, Whatsapp, etc.) in maintaining interpersonal communication, which is replacing face-to-face communication.

The main focus of this study is that this research highlights the Non-verbal cues, which are taking the place of words and sentences in a virtual world and present text communication. Actually, non-verbal cues are new and changed patterns of text-based interpersonal communications, which are changing the pattern of text communication and social interaction. The research also tries to study the textisms (abbreviations, initialism, phonetic words, alphanumericism etc.), which often use in text communication. So it becomes important to find out whether it is frequently used by the users as communication patterns or not. It is also necessary to find out, what is the reason for the use of textisms. In the current era of modernization, people depend on ICTs for information, communication, entertainment, persuasion, and even maintain their daily lifestyles, such as education, teaching, work, shopping, etc. The greater reliance on this and the frequent use of ICTs will bring what kinds of behavioral changes in individuals is also need to find out.

1.4 Significance of the study

The study looks at the uses and effects of Information and Communication Technologies in Interpersonal Communication among the users; its finding is relevant because it informs the entire user to the effect of ICTs in interpersonal relationship and individuals behaviors. Thus, keeping role of ICTs in Interpersonal communication, the study has following significances:

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1. The findings of the study will make aware to its users about the influence of information and communication technologies in interpersonal relationships.
 2. The study will help in knowing various types of nonverbal cues. This will shed light on the reason why people use Non-verbal cues during text messaging and instant messaging. This study will also help to understand how do nonverbal cues affect text communication and replace words and sentences or not.
 3. The research will help to understand that how and why does the mediation of technologies affects face-to-face communication and has become important for interpersonal ties.
 4. This study will explore and aware people about the various modern and innovative tools, frequently used by the people.
 5. It will make aware of the patterns and forms of textisms, which has become a new and stylish language for text messaging.
 6. The findings of this study will help to understand the impact of uncontrolled use of social networking sites and the Internet on an individual's behaviors.

1.5 Aim and Objectives of the study

The main aim of this study is to explore the effects of ICTs on communication patterns. How are ICTs changing the ways of communication and replacing face-to-face (real) communication. What is the role of ICTs in replacing words and sentences during text (messaging, chatting etc.)? Besides, this study aims to explore how does ICTs effect and change individuals (users) behavior. The following are the specific objectives of the study:

1. To study the role of ICTs (various tools and techniques) in maintaining interpersonal communication among the respondents
2. To study the uses and effects of ICTs in the context of interpersonal and face-to-face communication
3. To study the association between the use of digital Non-verbal cues in place of words and sentences and gender among the respondents
4. To study the association between the use of Textisms in place of full words and sentences and gender among the respondents
5. To study the Influence of information and communication technologies on individuals' behaviour

1.6 Hypotheses of the study

The simpler meaning of the hypothesis is an educated guess based on a previous study created for a study. The purpose of developing the hypothesis is to find out the solution to problems. It gives us the direction to know about the relationships between two variables. It aimed at promoting a critical approach. It allows the researcher to develop a specific direction, as well as a better understanding of the study topic. It also assists in the thorough and focused analysis of the collected data. The following are the specific hypotheses of the study:

- H1:** Information and communication technologies play a role to maintain interpersonal communication.
- H2:** Individuals frequently use digital Non-verbal cues in place of words and sentences.
- H3:** Individuals frequently use various types of Textisms forms in place of full words and sentences
- H4:** Text messaging and chatting are more convenient rather than talking on the phone or face-to-face communication.
- H5:** Information and communication technologies are affecting individuals' behaviour.

1.7 Research Methodology

1.7.1 Mixed Approach

The procedure that confined the present research was a mixed technique plan, which joins philosophical assumptions and strategies for request supported by (Creswell & Plano Clark, 2007). A combined quantitative and qualitative study promotes a mixed-method approach that allows a stronger comprehension of a particular strategy. *In this study, the researcher has used a quantitative and qualitative approach (mixed-method approach). The quantitative approach has been used as the primary data, which is a source of generalization. The qualitative approach has been used as secondary data that helps to form the base of the study.*

1.7.2 Triangulation

Internet and social networking experts, users (students), and thematic content are the three sources employed for data of this study. Each source provides assurance

to establish each other's credibility. Denzin and Lincoln (1998) claim that triangulation is the use of multiple methods to ensure the research process is well-understood

The researcher's purpose in using the triangulation design is to directly compare and contrast the results of qualitative and quantitative data to each other. For this, different data types were collected and then triangulated from different sources to further identify the concepts. This study examines various aspects of sources of data collected and theoretical perspectives, followed by the triangulation method.

1.7.3 Exploratory Research

The initial study into a hypothetical or theoretical idea is defined as exploratory research. Researchers use exploratory research to familiarize themselves with a current trend and gain new insight into it to establish a more accurate issue. *Based on this, the researcher conducted a depth interview with the internet and social media experts, media behavioural observer's experts and analyzed other contents related to the study. For the collection of primary data, the researcher conducted a field survey. This survey was based on the research objectives and problem of the research.*

1.7.4 Survey Method

Survey method is a major field of applied social science research measurement. Surveys are used to gather views, beliefs, and feelings from chosen individual groups. *On the basis of this, the researcher conducted a survey to know the views and opinions of users towards the use of information and communication technologies in interpersonal communication. Through the survey researcher has also explored that which kind of effects and changes in behaviour are there on the users. For the survey, the researcher has designed an interview schedule.*

1.7.5 Descriptive Analysis Method

Descriptive research is intended to describe a population, situation or phenomenon accurately and systematically. Descriptive research design can explore one or more variables using a wide variety of quantitative and qualitative methods. In order to identify characteristics, frequencies, patterns, associations and categories, descriptive analysis is an appropriate choice. *Based on this, the researcher constructed open-ended and closed-ended interview schedules and asked the users about the use of*

information and communication technology. The survey analyzed the views and opinions of the respondents by the researcher.

1.7.6 Sentiment and Semantic Analysis

The analysis of sentiment (emotion) includes the use of language processing, text analysis, computational and biometric linguistics to define affective and subjective status systematically and collecting, quantifying, and researching information. The meanings and contexts used to understand natural language is called semantic analysis. Semantic analysis of the natural language content begins by reading all the words in their content in order to capture every text's true meaning. It identifies and assigns the text elements to their logical and grammatical role.

The purpose of sentiment analysis is to define automatic tools that can extract information from natural language text and images, such as opinions and feelings. Social media sentiment analyzes lead to new and more complex scenarios. The feeling is often expressed in maximum of two sentence sections with an informal linguistic register and non-standard orthographer.

On the basis of this, the researcher analyzed the emoticons, emojis and non-standard orthography (various forms of Textisms (abbreviations)) used by users in the communication process. Through this, the researcher tries to find out whether the emojis sent by the sender has the same feelings that it wants to send to the receiver or that the receiver receives or perceives it as another emotion.

1.7.7 Sampling Process

This study is based on the use of information and communication technologies (Internet, social networking sites, smartphones, etc.) for interpersonal communication. For the fulfilment of the purpose and delimitation of the study, the researcher has taken a higher education Universities/institutions of the NCT of Delhi for this research. Delhi is a metropolitan city and according to UGC institutions report, there are 27 different types of University/Institutions. The nature of all universities/Institutions is heterogeneous. Therefore, for the selection of sample Universities/Institutions the researcher has categorized all University/Institution based on their homogeneity. According to UGC, higher education universities/Institutions divided into different categories such as Central University, State University, Deemed University, a Private University, and Institutions of National Importance. In the NCT

of Delhi, there are no private universities/institutions, according to the UGC list. So in this study, higher education universities/institutions are divided into four homogenous categories.

Sampling Techniques

In this study, probability and Non-probability, both sampling techniques have been used. For the selection of sample universities/institutions, a stratified sampling technique applied as a probability sampling. The researcher has divided all universities/institutions on the basis of their homogeneity into four strata or category. Strata A represents 'Central University', Strata B represents 'State University', Strata C represents 'Deemed University, and Strata D represents 'National Importance Institutions'.

The population of each stratum is not the same. Therefore, the selection of the sample of Universities/Institutions for data collection, the researcher has been used central tendency (Mean/average). For the selection of the sample (universities/institute) from each stratum, the researcher has used the following mathematical technique.

$$\text{Number of the universities/institutions in categories (Strata)} \times \frac{\text{the total number of all higher education universities/institutions}}{100}$$

The selection of a number of universities/institutions from each stratum, the researcher has used the Lottery method followed by a **simple random sampling** technique for the selection of Names of universities/institutions for data collection.

For this study, a **purposive sampling technique** has been used for the selection of users (students) of ICTs (Internet, social networking sites) followed by the non-probability sampling technique.

For Qualitative Data:

For the qualitative data, the researcher has conducted in depth-interview with experts. For the selection of experts, the researcher has used a purposive sampling technique based on the problems of the study. Purposive sampling technique is a type of non-probability sampling technique. Besides this, content analysis of related studies has also done by the researcher for the qualitative data.

1.7.8 Sample Size

A sample is a population subset and includes a few chosen members from the population (Sekaran, 2003). The sample size of this study is based on the total

population of the universe. So for determining of sample size, the researcher has used the following mathematical formula developed by Taro Yamane (1970:886-87):

$$n = \frac{N}{1 + N(e)^2}$$

Here, N = Total population

e = Error or confidence level

n = Simple size

95% confidence level

$$n = \frac{31762}{1 + 31762(.05)^2}$$
$$n = 395$$

The sample size for this study based on the above formula is 395. Therefore, surpassing this figure, the researcher has decided to conduct a study on 400 samples.

1.7.9 Data collection Method and Tools

For this study, the researcher has collected data from students and the Internet or social media experts. The researcher for the collection of primary data has used the field survey method. For secondary data, the researcher has conducted an in-depth interview. In addition, the researcher for secondary data has also used content analysis. Secondary data has been collected from various sources, namely, journals, books, newspapers, magazines, research theses, literature, various websites, etc.

For this study, the researcher has used the Open-ended and closed-ended interview schedules as a data collection tool in respect of users (students) of information and communication technologies. The researcher has used an open-ended interview guide to collect data from an Internet or social media expert as a tool.

In this study, statistical packages such as Excel and Crack versions of SPSS 23.0 have been used for the analysis of quantitative data. In addition, descriptive statistics such as mean, percentage, tabulation, crosstab, and chi-square have also been used to analyze the data.

2. Review of Literature

The section has described the review of the empirical literature on the concept of uses of Information and communication technologies as interpersonal communication patterns and in other activities. It also includes reviews of how ICTs changes the tools and techniques of interpersonal communication and replacing face-to-face communication. This has covered reviews studies focusing on non-verbal cues such as emoticons and emojis as technology-mediated forms of communication. The use of textisms and textisms as new forms of communication also has been reviewed.

It also covers the review of how the use of ICTs affects individual behaviors. This has also covered the theoretical framework of the Information and Communication theories applied to this study.

Today's society has shaped by rapid advancement and growth of information and communication technologies. The competence of ICTs has been resulting in great dependency of individuals on ICTs for information. For this study, ICTs is the extensional phrase of "Information technology" which combination of unified communications such as social networks, instant messaging, web & video conferencing, voicemail, e-mail, SMS, etc. and the integration of telecommunications, computer as well as which having ability to access, transmit and manipulate information.

Social media promotes communication to new levels and is an all-round way to interact with friends, families, enterprises, and even acquaintances. The technology enables persons to archive previous communication, control the flow of information completely, and provide an identity for an individual or group. Instant messaging (IM-ing) involves sending in a conversation that has established itself in real-time, online computer messages to another user. Researchers found that IM-ing is the best-known way of communication between young people who go online, with 75% and 48% using it at least once every day (Hinduja & Patchin, 2008). IM is usually private and provides young people with an opportunity to practice and develop their social relations. However, research is still in its infancy into using social media to understand behavioural health disorders.

2.1 Theoretical Framework

Technology Determinism Theory - The major variable of this study is Information and Communication Technologies, which have a tremendous role in communication these days. The researcher applied the concept of technology determinism theory to know the unique and advanced features for interpersonal communication provided by ICTs.

Uses and Gratification Theory - The theory of uses and gratification is a key theory of studies on communication. It is a strategy to understand how and why individuals actively seek certain media. The current research adopts an alternative way of exploring motivation by adopting uses and gratification structure. Uses and gratifications is a theoretical direction with attention on why individuals utilize a

given medium, rather than the "effects" of a basic introduction to its substance (Blumler & Katz, 1974).

Displacement Theory/ Media Displacement Theory - This study is based on the displacement theory. Every new thing causes the displacement of old things. The concept of displacement also applied to this study. Follow this concept, the researcher focused on the reason for the replacement of face-to-face conversation, uses of digital Non-verbal cues, and shortcut and stylish patterns of communication textisms, which are replacing words and sentences during text communication.

Media Richness Theory - This study aims to find out the reason for ICTs uses in interpersonal communication. To find out, this researcher followed the concepts of media richness theory. Based on this theory, the researcher generalised the tools and techniques for communication. The theory pointed out that role of communication and the media should be combined to boost efficiency in communication.

Symbolism interaction theory - Symbolic interactionism is a sociological theory, which implies that both languages and symbols prescribe their meaning. These meanings are developed, brocade, protected, and cultured through interactions with others. Based on this theory, non-verbal cues have been used to exchange messages, thoughts, along with objects, media, and other images.

Cognitive behavioural theory (CBT) - This study based on Cognitive behavior theory, which is based on a psychopathological cognitive framework. The cognitive theory explains how people's expectations of or random thinking affect their emotional and behavioural (and sometimes physiological) reactions. Based on this theory, the researcher explored the how internet and social networking sides influence and change individuals behaviour.

Hyperpersonal Communication Model - In this study, the hyperpersonal models of communication from Walther's (1996) have used to explain potential differences between Face-to-Face communication initiation and TMC relationships. Hyperpersonal communication model offers, *"a fully integrated view of CMC taking into account the sender, receiver, channel, and feedback as each contributes to hyperpersonal interaction in CMC"*(Walther, 1996, p. 28).

Sociocultural Orthography Model - This study followed the concept of the orthography model. Through this concept, the researcher tried to find out the significant challenge of learning new spelling and language in mediated forms.

Orthography discussions provide descriptive information for pedagogical or corrective purposes that focuses on sound-spelling, spelling problems, or historical reports on standardization and which orthographic texts reveal earlier statements (Leith, 1997).

Technology Acceptance Model (TAM) - In this study, to find out the technology framework of users' adoption and use of new and innovative technologies for interpersonal communication, the researcher has followed the concepts of the Technology Acceptance Model. The technology acceptance model, as presented by Chang and Wang (2008), indicates that computer-mediated-communication attitudes are related to user expectations and decision-making.

3. Interpersonal Communication

Interpersonal communication is the person-to-person interaction and it is an interaction between two people. Through this, people can share different life experiences, different levels of communication skills and various opinions about communication. Tarone (1981) also highlights it as the process of meaning sharing between interacting persons as an instrument for the fulfilment of interpersonal needs. Interpersonal communication is a fundamental skill in life that helps us to maneuver through our various circumstances and interactions in our lives. Despite differences in ethnicity, culture and language, verbal and non-verbal interpersonal communications are a powerful connecting force that brings together people and facilitates a common experience. The core of our relationship in the world is interpersonal contact. However, discussions and interpersonal interactions are reminiscent of us and can lead us to ask what the mechanism or experience is that separates these interactions from other conversations. One view is that the memorable experiences consist of two people who specifically communicate their own purpose and experience, generating a sense that the other understands them (Gibb, 1961). Interpersonal contact is relational; it occurs in a connection, and the way we connect depends on how we have a relationship with the other person. The contact style can vary from relatively impersonal to highly personal. The individuals involved in the relationship are interdependent, meaning that one person's behavior has an influence on the other person.

4. Role and Effects of Information and communication technologies in IPC

Information and Communication Technologies (ICTs) have made a Hyper-Digital Communication world for Interpersonal Communication. Online

communication patterns are dominating our formal and informal conversations. Not only this, the development of technologies now provides the facility of Hyperpersonal Communication¹ to their uses. New Information and Communication Technologies (ICTs) are changing the way of our Interpersonal Communication. Interpersonal Communication means ICTs based Communication, where the Internet, social networking sites, mobile phones, and computers play an essential role in the communication process. The use of information and communication technologies has become common in interpersonal communication between individuals. The use of ICTs has steadily increased over the past few decades. According to a recent report by Pew Internet and the American Life Project nationwide, 73 percent of adults are using the Internet and going online, 78 percent of adults use a cell phone for Communication, and 93 percent of teens population used the Internet for Interpersonal Communication (Jones, 2009).

Face-to-face interpersonal communication not only happens with verbal symbols, but it has sometimes happened with nonverbal symbols also, such as facial expressions, kinesics (gestures and postures), eye behavior, and others. The progress of ICTs has now transformed these nonverbal symbols into digital nonverbal cues 🙄 and graphics. This change has brought tremendous changes in the communication process, which provides us with new patterns for interpersonal communication. These modern digital nonverbal cues 🦄 or Technology-Mediated-Graphics are used in online and text-based interpersonal communication. Which include a variety of Technology-Mediated Graphics (pictograms), for example, emoticons, emojis, stickers, moving and animated emojis, and images?

Text messaging is used for convenience, especially among university students. It can also be even addictive. Text can be possible from anywhere, for example, while in the classroom, driving, in the movie theatre, in the school, workplace etc. (Hemmer, 2009). Besides, of this, now people also using varieties of textisms during text messaging and instant messaging on social networking sites for interaction, which become the new forms of language and communication patterns. The advancement of ICTs has also provided hyperpersonal communication patterns for interpersonal communication. These patterns have become a substitute for face-to-face communication, and even now, it has replacing talk on phone communication.

¹ The way of online interaction, this involves the level of affection and emotion as parallel to face-to-face communication.

One of the earliest research studies published by American Psychologist explored the correlation between Internet use and social participation and psychological well-being. Results show that increased internet use has affected social involvement, loneliness, and an increase in depression symptoms. It was also found that the more internet is used, the less the communication between family members. According to the Pediatrics Journal, people who devote too much time to Facebook suffer from Facebook depression.

5. Digital Non -Verbal Cues in Interpersonal Communication

“Tone of voice, facial expressions, gestures — these are all vital elements of face-to-face communication, but they’re stripped away in writing. Emojis offers a way of compensating for this”.

Dr. Daria J. Kuss

According to Herring and Dainas (2017), digital non-verbal cues in communication technology means graphical icons, which include emoticons, emojis, GIFs, images, etc. Emoticons and Emojis are popular digital pictograms that appear on social networking sites and text messages. Apart from facial expressions, Emojis are lively and colorful images representing a number of characters around us. Hence, emojis are more diverse and complex than their predecessors, emoticons, made up of ASCII (American Standard Code for Information Interchange) characters to represent facial expressions. In recent decades, and with the emergence of various computer-mediated communication forms, emoticons and emojis have been frequently used in their daily online interactions, mostly by young generations. They are using almost every online channel for interaction, such as blogs, texting, emails, instant messages (IM), Facebook, Twitter, and several other digital platforms.

Every day, hundreds of millions of people communicate with emojis, whether they are sender, receivers, or both (Hannah Miller, 2018). In 2015 the word “face with tears of joy” (😄) had chosen word of the year based on the ubiquity of emojis. In 2014, Jeremy Burge, Emojipedia's founder, created World Emojis Day. World Emojis Day is marked by a 'global celebration' on 17 July, when people are encouraged to use emojis on social networking sites.

The silicon valley-based organization monitors the habit of emojis use of big tech companies, universities, and government agencies. Based on this survey Unicode consortium reported in October 2019 “ 😄 ” (emoji of face with tears of joy) is the

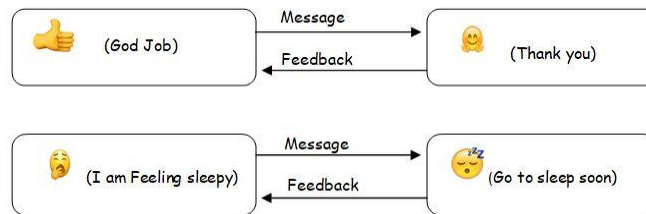
first most frequently used, “❤️” (red heart) is second and, “😍” (smiling face with heart- eyes) is third frequently used emoji respectively. Unicode survey on echoes found that out of 2,822 emojis, “😂” (face with tears of joy) ahead all of them. It (😂) also chose by Oxford Dictionaries in 2015 “word” of the year. The pictograph introduced in 2010 and used to underscore a joke, acknowledge a funny comment emphasizes a joke, recognizes a funny comment or lightens a sarcastic remark. 🤪 (rolling-on-the-floor emoji) emoji came in fourth place, which is used to convey extreme hilarity far greater than any other smiley emoji that is available.

Computer-mediated communication cognitive psychologist Monica Riordan stated that mostly, people try to encode an extremely complex set of emotional and social issues into a small graph; and expect the other person to interpret the emojis they want to communicate correctly. She said many studies show that 55% of human interaction happened through body languages such as gestures, posture, and facial expression. Only 38 percent is communicated by the sound and phonation of the voice. According to her, on larger scale, emojis are “relationship maintenance tools.” It is used to express emotions that the other person wants us to convey. Through this, people are able to convey laugh, sad, cry etc. moments that time also when they are actually in real life not laughing, sad (😞), crying (😭), etc.

On the occasion of world emojis, day adobe released their 2019 emojis trend report, the report based on a thousand emojis users of the united states. The report revealed that 93 percent of emojis users said that they used emojis because it lightens the mood of a conversation and 91 percent said that use of emojis during the conversation to show support to people. Nineteen percent of emojis users stated that emojis could communicate as the language, so they overcome language barriers. It also has the ability to share thoughts and ideas instantly. Eighty-one percent of the user said to communicate with emojis are friendlier and more approachable. Sixty-five percent of users said it is a comfortable way to express our emotions rather than phone calls. Sixty-three percent said they used emojis at the workplace also because it affects credibility. In the context of information, 74 percent-said emojis convey positive news more sincerely (Clover, 2019).

The process of digital non-verbal communication is the same as other communication, there is a difference in their patterns only; means this done by the

emoticons and emojis. The following figure shows the process of digital non-verbal cues based communication:



Source: Self-created

Figure: Suggestive process of Digital Non-Verbal Communication

The figure shows that Emojis can reinforce the meaning and clarify the emotion. By knowing each other's feelings, the process of communication works well. The effective utilization of emojis to improve communication, upgrade social presence, and assemble community is an advanced competency, one part of an individual's digital proficiency. Thus, efficient use of emoticons can improve the capacity of a person to use electronic communications correctly and adequately. Some studies found that there is a tension in both our literature and private experiences between the utilities of emoticons and certain people's views of emoticons as unprofessional (Hasan, 2018).

6. Textisms in Digital Interpersonal Communication

Textisms are defines as the language used in texting and chatting, featuring the use of abbreviations, single letters, and symbols. It is an Unconventional spelling used typically in texting messages that range from lexical to morpho-syntactic to orthographic features including, but not limited to, abbreviations. It is a traditional form of shorts hands, which became in the technology era new patterns of Communication. According to Sutherland, (2002) young users call it "generation text," "generation grunt" and "net generation," while SMS has a link to the definitions such as "bleak, bald, sad shorthand." It include various forms such as Alphanumericism (cu l8r, g8t), Shortenings (sun, feb), Initialisms, and Acronym (OMG, BF, LOL), Accent stylizations (wanna, gonna, dat), etc.

Textisms are usually used during text messaging and instant messaging. Nowadays, people text each other through various applications used by computers, mobile, and internet. Hence, textisms invention and growth depend on technology and creativity in text communication. Technology and creativity in messaging have created a new form of language, called textisms. Collins English Dictionary based textisms mean “a word or abbreviation typically used in a text message.” Textisms,

according to Thurlow, are the new language of text communication, which involves the use of shorter words or phrases (Thurlow, & Brown, 2003). This also involves G-clippings, letter/number homophones, misspellings, other clippings, acronyms, initialisms, etc. According to Singh (2015), 31 percent of people send 100 plus text messaging every day, and 16 percent sent 51 to 100 textisms in texts every day. Singh found that five billion text messages are exchanged for personal or business use every day (Singh, et al. 2015).

Over the past decade, media reports have cast text language and online communication as a mode of "youth communication" that consists mainly of non-standard language types. Characteristically cited examples of text and computer-mediated messages, include heavily abbreviated, symbolically rich, and occasionally undecipherable sentences. The article title of Journalist John Humphrys, "I H8 Txt Msg: How Texting is Ruining our language", provides as an example: "IMHO U R Gr8" – "in my humble opinion you are great" (Humphrys, 2007). Media reports suggest that such stylizations in everyday text language are universal. Thurlow (2006) also stated, "Mst f d tym dey usd ds knnd f lng'ge": "Most of the time they use this kind of language" (Thurlow, 2006)

Children and youth are the largest text messaging user groups and CMCs worldwide (Ling, 2005). The analysis of 101 texts and CMC language media reports by Thurlow (2006) reveals that the vast majority of media reporting shows a negative view of the language used (Thurlow, 2006). On the other hand, younger users call it "Generation Text," "Generation Grunt," and "Net Generation," while in SMS, it has become a link to definitions such as "Blake, billed, sad shorthand" (Sutherland, 2002).

7. Findings and Recommendations

7.1 Survey-Based Findings

For this study, a total of n = 400 respondents were surveyed by the researcher for data collection. Close-ended and open-ended questions were asked to the respondents, which were concerning the research problem, on "*Uses and Effects of Information and Communication Technologies in Interpersonal Communication: A Study in Delhi*". In this study, the researcher found that out of the total respondents, a large proportion of the respondents are in the age group of 18-24 years. It was found that the majority of the defendant male, .i.e. 64 percent participated in this survey compared to females. The study is based on higher education, so it was found that majority of the respondents from undergraduate and postgraduate students

participated in this survey. It is observed by the researcher that central universities is having more students as compare to state universities or any other Universities / Institutions. In addition, it was also found that the majority of the respondents who participated in this survey stayed with friends and roommates. Based on the data, the researcher made the following conclusions. The findings based on the following objectives and Hypotheses:

Objective 1: To study the role of ICTs (various tools and techniques) in maintaining interpersonal communication among respondents

Objective 2: To study the uses and effects of ICTs in the context of interpersonal and face-to-face communication

Hypothesis 1: Information and communication technologies play a role to maintain interpersonal communication

In this study, the researcher has found that most of the respondents are using ICTs (TMC) to maintain different relationships rather than face-to-face communication. Data says that WhatsApp is the most frequently used social apps in a daily communication compare to other social apps such as WeChat, LinkedIn, Google+ Snapchat, etc. The data found that twitter is often used for received and sent social information in a day basis among other blogs. Data says that Facebook is the most used social media platform to interact, post, comment, and share informal and formal information on a daily basis, among others. The data also says that Instagram is the second most used social media platform to interact, post, comment, and share information.

Data suggested that majority of respondents *agreed* that information and communication technologies made interpersonal communication easy, affordable, and fit the budget. The research has found that the majority of respondents *neither agree or disagree* that information and communication technologies safe and secure for personal and professional communication. On the statement that information and communication technologies made shy and unconfident people more open and frank, or we can say it has provided the way and opportunities of communication to that type of person, most of the respondents answered *agreed* on this statement.

The research has found that the majority of the respondents *agreed* on that information and communication technologies break social interaction; it made people

isolated and kept away from society in the real world, but in the virtual world, it made people more interactive and more socialize. Besides, data says that an overwhelming majority of respondents *agreed on* that information and communication technologies do not convey all emotions, feelings, and expressions equal to face-to-face communication.

The result found that information and communication technologies made our relationship smooth, improved, and strengthened. The data says that majority of the respondents *agreed on* that the technology-mediated virtual world, where all social networking sites, internet, and different websites are the medium to interact, maintain social status and give the chance to be a part of different activities and issues. The research found that on the basis of collected data, that social networking sites have facilitated people for communication, give a chance to make their view, provide a virtual world for socialization, keep updated with trendy information, and gave a platform to learn. It is also found that social networking sites are making people more confidence.

The data says that majority of respondents *agreed* that information and communication technologies help to release stress because when someone posts the stressor and feels demotivated, friends and family post comforting comments, which make them feel good. Besides, the research has found that the majority of respondents *agreed* that the internet and social networking site is the platform, which provides us a chance to be a part of current and burning issues/movement. In addition, most of the respondents answered *agreed on* the statement that Technology-mediated communication is replacing face-to-face communication. It found that majority of respondents *agreed* that technology-mediated communication had saved money and time, while face-to-face communication consuming more time and expense.

Data says that majority of respondents *agreed* that information and communication technologies provide us another life and society for social interaction that is a virtual world where we can interact globally. Data says that majority of the respondents *agreed on* the statement that the individuals feel neglected when he/she is with those friends, relatives, colleagues, etc who are busy with their phone and laptop during the conversation. The research has found that majority of respondents *agreed* that individuals take less interest in face-to-face communication if they have their mobiles and laptops. Besides, data also reveals that the majority of respondents *agreed*

that information and communication technologies provide facility to connect anytime and anywhere, to family, friends, colleagues, teachers, acquaintances, etc many times and around the world in a day.


Objective 3: To study the association between the use of digital Non-verbal cues in place of words and sentences and gender among the respondents



Hypothesis 2: Individuals frequently use digital Non-verbal cues in place of words and sentences










The research has found that majority of the respondents know about the emoticons and emojis 😊 and use it for communication purposes. Data says that majority of the respondents first time have seen emoticons and emojis 🙋 on Whatsapp. It found that majority of the respondents mostly use emoticons and emojis 😂 for informal communication. Data says that majority of respondents frequently and regularly use whatsapp for emoticons and emojis 🙋 🐱 based communication.






The researcher has found that majority of respondents *agreed* that emoticons and emojis 🤔 make texting easier than words. While analyzing and interpreting the statement that emoticons and emojis 🙋 make text attractive, the study suggested that majority of the respondents said *agreed* that emoticons and emojis 🙋 make text attractive, and it also found that sometimes images stimulate chatting or interaction. The majority of respondents agreed with the statement that emoticons and emojis 😂 are making the text easier to understand. On the statement that emoticons and emojis 🌺 took less time to type than a word, sentences and save time during communication, most of the respondents answered *agreed* on this statement that it takes less time. On the other hand, majority of the respondents *disagreed* on that the people only use emoticons and emojis for entertainment. This suggests that most of the respondents use emojis for communication purposes.







One question was based on whether emojis 🙋 could convey the words or feelings behind the feelings of the individuals that they wish to express; most respondents *agreed* that emojis 🙋 are able to express the emotion behind the words



or feelings of individuals. The research has found that most of the respondents *agreed* that sentiments icons  (emoticons and emojis) enhanced interest in the communication of the sender and receiver.




The data states that the overwhelming majority of respondents agreed that emoticons and emojis  are shortcut patterns of text communication. On the statements that emoticons and emojis  are difficult to type and understand than words, majority of respondents answered *disagreed*.

Based on collected data, research has found that majority of the respondents sent emojis  in text-based communication during the interaction. The data suggest that the majority of respondents *agreed* that they receive emojis   in text-based communication during conversations. On the statement that the emojis  and other symbols provide for the communication are sufficient or not, on this, most of the respondents answered that *no*, there is still lot of emojis  are missing for proper communication. The data suggested that most of the respondents sometimes communicate only with emojis  . The results found that majority of the respondents said *yes* that to show the intensity of emotions (level of happiness, anger, excitement, etc.), people send many emojis   of the same emotion at a time.

This study found that most of the respondents use  emojis of smiling face with smiling eyes ‘to express a genuine feeling of happiness’, which same as emojiopedia meaning. Data suggested that most of the respondents use  emoji of smiling face with heart eyes for express ‘I like or love this things or person’, which is the same as emojiopedia also, which means there is only less difference to the interpretation of emojis meaning. The research has found that most of the respondents use  emoji of folded hands for ‘prayer’ and ‘Namaste’ purpose, which is the same as emojiopedia meanings and interpretation. In some other Asian cultures and in Japanese culture, they used it to represent, ‘please, thank you,’ and ‘I am sorry’. It is also found that some respondents uses folded hand emoji  ‘to express Please’ and ‘thank you’, which is the same as Distionary.com meaning and interpretation. Data says that most of the respondents use  ok hand emojis to convey the ‘that’s good’ during the conversation, comment, and post.

The study found that majorities of the respondents interpret the meaning of  red heart emojis as '*Expression of Love*' same as emojispedia interpretation. This also shows the meaning and interpretation of  red heart emoji. The data suggested that most of the respondents interpret the meaning of colorful flowers arranged emojis  as '*To convey Congratulations*'. It found that majorities of the respondents use  emoji of disappointed face to convey the sentences such as '*I am sad*' and '*feeling sad*'. It found that majorities of the respondents use  emoji of the face with a thermometer for the sentences "*I am not well and I am suffering from fever*" which also generally use to indicate that. The data suggested that the majority of the respondents use  emojis of a broken heart to replace the sentences "*my heart is broken, and my heart will break.*".

The researcher has found that most of the respondents use  emoji of face savoring food for the place of "*It's very tasty*", "*Yummy*", "*Delicious*" etc. sentences. It found that the majority of the respondents use  (Emoji of thumbs up) to convey the sentences and words "*I like it, ok, and agree*", which generally use for it.

The study suggested that most of the respondents use  (Emoji of a face with furrowed eyebrows looking upwards with thumb and index finger resting on its chin) to say '*I am thinking and I am trying to understand*'. The data states that most of the respondents use   (Emojis of face with eyes closed and mouth letting out three, cartoon - styled Zzz's overhead, and hand waving) to convey the sentences and words "*Feeling sleepy, bye and I just wake up, Hello*", which also generally use for it.

Objective 4: To study the association between the use of Textisms in place of full words and sentences and gender of among the respondents

Hypothesis 3: Individuals frequently use various types of Textisms forms in place of full words and sentences

Hypothesis 4: Text messaging and chatting is more convenient rather than talking on the phone or face-to-face communication

The data suggested that the majority of respondents frequently and regularly use Whatsapp for texting, messaging, and chatting. Therefore, Whatsapp found

frequently used platforms for text-based interpersonal communication. The researcher asked the respondents that much chatting and messaging is a good way to keep in touch with others, majority of respondents answered *agreed* that much chatting and messaging keep in touch with others.

The researcher asked questions to the respondents that texting and chatting are more convenient than talking on the phone; most of the respondents said *agreed* that texting and chatting are more convenient than talking on the phone. The data suggested that the overwhelming majority of respondents said *always* that they use abbreviations in their chatting and messaging during the interaction. This study found that the overwhelming majority of the respondents are using 26-50 percent of the abbreviation, phonetic, initialisms, alphanumericism, etc. words during chatting and messaging.

The researcher has found that most of the respondents answered that they always use abbreviations, phonetic, initialisms, alphanumericism, etc. and understood the meaning of abbreviations (textisms) during messaging and chatting. The data suggested that the use of abbreviations (Textisms) during messaging and chatting makes text easy and simple. Data says that respondents want to use abbreviations, it because it takes less time, and easily type, not because of forgetting of spelling of words and limitation of word space. A majority of respondents said that they use abbreviations because it is a stylish way to write any message. Data says that the use of symbols and abbreviations take less time as compare to full text during text communication. The research has found that most of the respondents said that during messaging and chatting, it is not necessary to follow grammar rules. The data suggests that most of the respondents said *agreed* that the internet and social networking sites are creating barriers for a talk on phone-based communication and face-to-face communication.

The study found on the basis of primary data people are using textisms instead of words. For example: Today replaced by '2day', Tonight replaced by '2nite', good night replaced 'g9t', great replaced by 'gr8t', for is replaced by '4', tomorrow is replaced '2morw', what replaced by 'wat', Love is replaced by 'lob' and 'luv', you is replaced by 'u', ok is replaced by 'kk', you are is replaced by 'u r', birthday replaced by 'bday', Oh My God replaced by 'omg', see you replaced by 'cu', Laughing out a loud is replaced by 'lol'.

The study found that users spend an average of 31 minutes to 2 hours per day on formal and informal text-based communication. According to Statista 2017 and 2018 reports, the average time spent per day by users was 135 to 153 minutes, included the overall use of the Internet and social networking sites such as YouTube videos, movies, and games. However, for this study, the researcher has taken to the Internet and social networking sites only for the purpose of formal and informal interaction such as phone calls, messages, chatting, comments, posts, share photos, plan to make, etc.

7.2 Experts and Content-Based Findings

Objective 5: To study the influence of information and communication technologies on individuals' behaviour

Hypothesis 5: Information and communication technologies are affecting individuals' behaviour

During the last ten years, the rapid development of social networking sites has created a new medium for human interaction but has also greatly influenced the behavior of individuals. According to Expert Mr. Amit Joshi, the Internet and Social networking are reduces loneliness and providing a virtual society for interaction where people have many options for interaction and other things. Whereas, according to expert Dr. Yatan Pal Singh Balhara, the internet and social networking sites are do not isolate the people. Even, it attaches the people with virtual society for social interaction.

The researcher has explored the following findings that affect the behavior of a person. These findings are based on the Experts views and Content analysis.

1. In this study, the researcher found that ICTs (Internet and social networking sites) have completely changed the habit and behavior of individuals. The involvements of ICTs are increasing day by day. For example, now people like to do online shopping, online learning, and education; they update online news, events and other trending topics. Not only this, but individuals are also using ICTs to share photos, videos, updates etc. with friends, family and others. It is also used to plan with friends and social groups, interacting with celebrities, and making new friends.
2. It has been found that, while ICTs have made our life and communication easier, economical, better and smooth, it also has some effects that affect

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- individuals' behavior. It has also found that the Nature (positive and negative) of online interaction is a reason of the low mood that affects the behavior.
3. Harmful online interactions have been found as a cause of worthlessness and hopeless feelings, which increase depression.
 4. The study found that frequent and regular use of social media is a type of psychiatric disease. This is a type of Internet addiction, which is like other drug addiction like drugs, narcotics etc.
 5. Kuss, D. and Griffiths, M. 2011, analyzed 43 previous studies and found that social media addiction is a mental health problem that requires professional treatment. They also found that excessive uses of social media created relationship problems, worse academic achievement and lack of interaction in offline communities (Kuss and Griffiths, 2011). Same as the researcher has also found that addiction to social media is a health problem.
 6. It has been found that frequent social media use is the reason for poor academic records, poor performance and poor interaction in society.
 7. Research has found that excessive use of social media is cause of lowers self-esteem in people. When people see and read posts, photos, comments about other people's enjoyment, achievement and their personal lives, they start comparing them to others. Which somewhere demolishes them?
 8. It was found that social media has a negative as well as a positive effect. Facebook and other social media make people aware. The positive activity of other people motivates other people. People's positive comments on negative posts reduce individuals' negativity.
 9. It has been found that indulging in betting, gambling, gaming, etc. on the Internet and social media increases the need for money, which is a cause's stress.
 10. The research found that too much involvement on social networking sites and the Internet is a cause being separated the individual from society. They stop interacting or mingling with friends and family members and always try to keep a distance.
 11. The study found that substance abuse and depression are common problems among frequent users of the Internet and social media. The overuse of social media and the internet is detaching people from the real world. This increases their lack of confidence in the real world.

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12. It was found that internet and social media are the reason behind sleeplessness and trouble in concentrating. On the basis of content study it has found that artificial light such as blue light; smartphones and laptop screens reside in the body's production of the hormone melatonin and link it with sleep disturbances.

7.3 Major Research findings of this study

The major findings on the research study “*Uses and effects of Information and Communication Technologies in Interpersonal Communication: A study in Delhi*” are:

1. The study found that, generally, technology-mediated all platforms are being used for interpersonal communication.
2. Research has found that WhatsApp is the most commonly being used platform for informal communication.
3. Research has found that Twitter is most frequently being used to get information on a daily basis.
4. The study found that Facebook (Messenger) is the most frequently being used social media for interacting with posts and comments.
5. Research has found that Instagram is most frequently being used to share, post, and comment on a daily basis.
6. The study found that a technology-mediated communication method is being used more than face-to-face communication method to maintain formal and informal relationships.
7. Research has found that ICTs made personal relationships smooth and strong.
8. Research has found that ICTs make interpersonal communication very economical and smooth so that people can talk from anywhere and anytime.
9. The study has found that ICT improves connectivity among people and provides various platforms for quick interactions that affect face-to-face communication.
10. It was found that digital non-verbal cues, such as emojis, are having the ability to express emotions in the same way as face-to-face communication that is often replacing face-to-face communication.
11. Research has found that emojis are frequently being used in text messaging and instant messaging during communication.

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12. It was found that emojis are replacing words and sentences during text-based (text messaging and instant messaging) interpersonal communication, because as it has the ability to convey feelings and emotions.
 13. The study found that the same emojis is repeated to reflect the intensity of any emotion. The repetition of emojis depends on the intensity of the emotion.
 14. Research has found that non-verbal cues are becoming universal language because it can convey emotions, postures, gestures, etc. like real communication without any words, sentence and physical presence. People do not need to learn any words, accents, dialects, and languages to understand.
 15. The study found that communication through Emojis makes text messaging easier to write and understand. Even the illiterate person quickly understands the feeling and emotion behind the expression.
 16. Research found that communication with Emojis saves time during text communication but also affects the grammar of the written language.
 17. It was found that Textism (Alphanumericism, Shortenings, Contractions, Clippings Initialisms, Acronym, Non- conventional spellings, Accent stylizations, Onomatopoeic spellings (misspelling/typos)) are being used by people during text-based communication.
 18. Research has found that Textisms are becoming a new and stylish pattern for communication. Sometimes it also increases the confidentiality of the messages, as there is no rule of words, sentences and grammar. Which helps users in personal communication
 19. The study found that frequent use of Textisms would affect the grammar of our written language and communication.
 20. The research found that heavy use of textual content affects a rising student's knowledge of the written language and creates spelling mistake problems. Although may be they do not have awareness about it.
 21. The study found that frequent use of ICTs (social media) led to feeling restless and anxious all the time, leading to increased levels of anxiety in individuals.
 22. Research has found that uncontrolled use of ICTs (Internet and social networking sites) keep people away from their real world, which leads to loneliness.

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23. It was found that negative online interactions lead to feelings of worthlessness and hopelessness, leading to depression.
 24. Research has found that the use of substance abuse and abusive language is very common for heavy users of the internet and social networking sites, as it is presented on the many internet and social networking sites in a positive way.
 25. The study found that loneliness attracts people towards a virtual based society, which leads to social isolation. The negative content of the virtual world affects personal health and their mindset, which causes mood change disorders.
 26. Research has found that frequent and regular use of social media led to poor academic records and work performance, due to which people no longer use their brains for creativity and other

7.4 Recommendations of the study

Based on the above results and findings of the study, suggested recommendations are following.

- 7.4.1 Internet and social networking sites (ICT) departments, organizations, and experts should regulate consequences for uncontrolled users, young adults and children. In addition, it should also prepare guidelines for adolescents and their parents of the ill effects of excessive use of the Internet and social networking sites.
- 7.4.2 Sometimes users start taking unnecessary and breathtaking information that affects their academic career and personal life that's why there is a need to set an age limit to use the Internet and social networking sites because teenagers are not enough to understand what information is for them or not.
- 7.4.3 There is a need to avoid various new and attractive patterns of communication such as hyperpersonal (communicating with emoticons, emojis stickers, animated gifs, etc.) and various textisms because it is creating spelling mistakes and pronunciations problem in teens and young people. Not even this, it also affects the teens' memory and their reading and learning behavior.
- 7.4.4 In the current scenario, there is a need to aware of the teens about the negative effects of the Internet and social media by parents. In addition, parents also need proper knowledge about the consequences of uncontrolled use of it.

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- 7.4.5** Now Internet and social networking sites become an addiction like other addictions, so programs and workshops should be organized and conducted for the users.
- 7.4.6** People should avoid overuse of the Internet and social media all the time for communication.
- 7.4.7** Much like Japan and China, more research should be done on hyperpersonal communication patterns in the Indian context because the meaning and interpretation of emoticons and emojis may be different in all socio and cultural scenarios.
- 7.4.8** Vendors of different platforms should talk to each other about the symmetry of emojis at the time of emojis design because different platforms create different designs for the same Unicode based emojis, which became a major reason for misinterpretation of emojis.
- 7.4.9** Communication is an essential part of life and technology, which is rapidly changing the culture of communication. Several studies conducted by different countries concluded is that emojis are seen as a universal language and communication pattern, so there is a need to conduct such studies as well.
- 7.4.10** Technology-mediated culture of communication should be a part of development communication. More technology-mediated communication theories need to be developed.
- 7.4.11** Websites and dictionaries like emojiopedia should be developed, which people can use to understand the meaning of emoticons and emojis, and also can able to compare the meaning and interpretation of it.
- 7.4.12** In 2015, the Oxford Dictionary added an emoji of "face with tears of joy 😂" to its dictionary. Likewise, more emojis need to be added to the dictionary.
- 7.4.13** It also needs to aware of the teens and users that "textisms" or "techlingo" are only for informal communication, which follows during texting and chatting on technology. It is not for formal communication.

7.5 Delimitations of the Research study

There is a lot of scope in the study to explore. It may not be possible to find out all aspects of research in one study. Therefore, for this study, the researcher has made some delimitation. These are as follows:

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- 7.5.1 For this study, the researcher delimited the research in only higher education institutions and universities of NCT Delhi to get an opinion about the research problem. The researcher selected only UGC-listed Universities/institutions.
 - 7.5.2 The researcher has delimited this research into those users' age groups who are frequently and regularly use the internet and social networking sites.
 - 7.5.3 The interview schedule prepared by the researcher was created only on the basis of how ICTs affect people's culture of communication, and what kind of new and innovative ways it provides for communication. This was also based on how ICTs involved in people's daily lifestyles and affected individuals' behavior.
 - 7.5.4 For the qualitative analysis in this study, the researcher purposively conducted an in-depth interview with experts followed by non-probability sampling technique.
 - 7.5.5 For the sentiment and semantic analysis in this study, the researcher purposively selected the 18-smiley face and 2 emojis symbols.
 - 7.5.6 Similarly, the researcher studied 10 of the most active platform vendors, but there are still at least 17 vendors with their own unique emojis renderings.
 - 7.5.7 For the analysis of textisms in this study, the researcher has purposively selected a few English words and aspects of the English language.

7.6 Limitations of the Research

The study entitled *“Uses and Effects of Information and Communication Technologies in Interpersonal Communication: A Study in Delhi”* has been done. It is known that all research has its own limits, same as this research is also having its limitations. The limitations of this research study are as follows:

- 7.6.1 The major limitation of this study is the non-availability of researches and reviews of the Indian context on digital non-verbal cues as communication patterns and shortcut communication patterns.
- 7.6.2 Similarly, non-availability of researches and reviews in the Indian context based on Textisms and Techlingo, as generation text and communication patterns.
- 7.6.3 For this study, the researcher was able to take only four hundred samples due to the small population of the universe.

7.6.4 Lack of specialized departments, organizations and experts, related to the hyperpersonal (Non- verbal cues) and technical linguistic area is also a prominent limitation of the research.

7.6.5 Similarly, lack of specialized departments, organizations, and experts related to Textisms and Techlingo area.

7.7 Future Scope of the Study

The researcher has tried her best to investigate all aspects of the research problem. However, different areas are still untouched and unseen, where further studies can be performed. These are the following:

7.7.1 In the sphere of ICTs communication patterns, the same research problem can be studied in different dimensions because this study focuses only on the use, function, and frequency of hyperpersonal communication (emojicons and emojis).

7.7.2 In this study, the researcher had taken the hyperpersonal communication pattern as an objective, so another separate study can be conducted as a subject covering all paradigms of emojis as linguistics.

7.7.3 Emojis usage and its meaning can be studied according to each culture.

7.7.4 A study should be also conducted on emojis to understand the meaning and use of it, which can create an easy perception of emojis according to culture.

7.7.5 It can also be studied that only emojis based sentences are also suitable for conversation or not, people are able to understand it properly or not, because the researcher has studied only short sentences.

7.7.6 For this study, only four hundred sample sizes were taken by the researcher for the survey, so further studies can be conducted on a comprehensive sample size, which will bring the more accurate result of the problem.

7.7.7 The researcher has conducted survey only with students from UGC recognized approved universities and institutions, so for further study, a different area may be selected where working and other people may also be a part.

7.7.8 In this study, the researcher used non-parametric tests and descriptive analysis such as frequency, mean, cross-tabulation, and chi-square tests to analyze and interpret the data collected, so parametric tests can be used for further studies.

7.7.9 Due to the study delimitation, the researcher only selected NCT Delhi for the survey, but different states can be selected to achieve better results.

7.7.10 This study only focuses on the effects of the Internet and social networking sites on human behavior; for other studies, researchers may take different dimensions. For example, the Internet is an addiction like drugs. The internet is a cause of psychological and mental health-related issues, which could do through a longitudinal research method in postdoctoral degrees.

8. Conclusion and Executive Summary of the Research

8.1 Conclusion

The primary aim of the research in this study is to explore contemporary patterns of interpersonal communication, cause of use, impact on users and new dimensions and changes in patterns of communication in terms of ICTs. This research has explored these assumptions using primary surveys, in-depth interviews with experts, analysis of related previous studies, and mixed-method approaches. A quantitative study was carried out to give complete information about the reason for uses of ICTs, effects on users and changing patterns of interpersonal communication. For a qualitative study, an in-depth interview and related literature analysis assessed to identify that how individuals maintain interpersonal communication, what are different concepts and terms of ICTs, what is the impact of the integration of ICTs in users' lives? The qualitative study also exposes users who have isolated themselves from normal life and use ICTs only to maintain their relationships. From this study, it has been concluded that, along with the development of technology, the communication system has evolved, which has greatly changed the way of communication. This study concludes that ICTs reduce time and distance constraints and have made it relatively easy to communicate with more and more people. To some extent, ICTs are replacing face-to-face communication & changing language patterns not only oral as well as written also. Conclusions based on the findings of the research study are the following:

8.1.1 Maintaining Interpersonal Communication

Information and communication technologies have developed immensely in the 21st century. New and innovative technologies have made a place in all walks of life. Smartphone, the internet and social networking are also playing an important role in daily lives. The research concluded that Information and Communication Technologies play a significant role in maintaining Interpersonal communication. This study makes a clear conclusion that ICTs play an important role in interpersonal

interaction and affect their users in different ways. It is contributing to maintaining the existing relationships and encouraging the development of a new relation. ICTs have changed the way of interpersonal communication, which is also changing the approach of interaction. Video chat and hyperpersonal online communication have now become the new pattern for maintaining interpersonal relationships. Various social media platforms and social applications have made interactive communication easy and stylish.

This study concludes that respondents often use ICTs or technology-mediated platforms for interaction and maintained a different type of relationship such as friends, relatives, classmates, teachers, office workers, love relationships, etc. ICTs have provided various platforms, such as WhatsApp, Facebook, Instagram, Twitter, LinkedIn, MySpace, WeChat, Skype, E-mail, and Blog, etc., which are often used by the respondents for communication, that shows that the determination of technology is changing users' habit regarding use of ICTs for interpersonal communication. WhatsApp, Facebook, Instagram has been the most preferred platform for the respondents of this study. The popular discourse on new technology, as Thurlow (2006) points out, usually treats users as "all right or all wrong." It would seem that a measured approach is needed. With the adoption of new technology, literacy has increased in general (Thurlow, 2006). For example, Massey, et al. (2005) reviewed samples of tests taken between 1980 and 2004 by UK 16-year-olds and found that their literacy standard was increasing over time (Massey, et al. 2005).

8.1.2 Influences of ICTs on Face-to-Face Communication

This study concludes that the advancement of ICTs is replacing face-to-face communication in interpersonal communication. Technology mediated communication such as voice calls, text messaging, instant messaging, video calls, emotion-based communication patterns and stylish and shortcut patterns of communication have made the way of communication more comfortable, easy, and economical. Users are using different ways of ICTs for personal communication according to their needs or we can say ICTs are creating their needs. Hyperpersonal communication patterns or features of online communication platforms have changed the ways of communication and meeting all the requirements of communication like face-to-face. It can say that this is a displacement of media in terms of hyperpersonal communication patterns that are attracting users to use. In this study, the researcher

found similarities in relation to the use of ICTs for interpersonal communication, like the Pew Internet and the American Life Project (Jones, 2009). It was found that now real face-to-face communication is changing into digital face-to-face communication (video conference, Emojis, stickers, gif, etc.). The study concludes that the Internet and social networking sites are being used not only for distance-based communication purposes but also by people who live in the same household with family members. The researcher has found that those who live with family have made the most use of ICTs for communication.

The study found that emotion and sentiment-based text such as emoticons and emojis are making communication unique and entertaining that replacing face-to-face communication. This was also investigated that respondents like to make conversation with digital emotions and sentiments. Because media richness is providing many new, attractive and easy platforms for Interpersonal communication. The research found that communication through technology makes shy and unconfirmed respondents communicable. Respondents answered that through phone calls, messages, chatting, e-mails, etc., they feel comfortable with their teachers, who do not speak in front of them. Besides, some respondents said that when we are unable to say anything in front of friends, relatives and lovers, we easily convey the same things to them on phone calls, messaging, chatting, etc. This is also becoming the reason for more use of ICTs and the replacement of face-to-face communication. This is also observed through data that ICTs are changing the cognitive behavior of its users.

8.1.3 Digital Non- verbal Cues in the Process of Interpersonal Communication

This was found that respondents have often used non-verbal cues (🤔👍) in their interpersonal communication. It is also found that the maximum respondents are using more emojis in informal communication than formal communication. This study concludes that emoticons and emojis have become new and unique patterns for communication. These emoticons and emojis are having the ability to express human emotions and sentiments just like face-to-face communication. Respondents communicate through various non-verbal cues as it helps to express emotions without typing any words and sentences. It was found that emojis are a better way of expressing emotions than text. Respondents are using emojis as being incredibly expressive, as it can communicate things that words and sentences cannot.

The study also concludes that respondents are using emoticons and emojis to make their messaging and chatting attractive and interesting. It was found that the involvement of emoticons and emojis have changed the meaning of text messaging. It is used to avoid the seriousness and dullness of messages and chats. Most of the time, respondents used it in a complex situation as emojis are having a more effective way of expressing complex emotions. For example, if someone is angry with someone, he/she may be sent emojis like weird regret and something funny that make him/her laugh. At that time, there is no need to talk and text to say sorry. We can just send him/her sad and cry emotion through emojis.

This study concludes that various non-verbal cues are taking place of words and sentences during chatting and messaging because it is a faster and easier way to communicate than typed complete words and sentences. Emojis are able to make quick responses and save time. It was found that emoticons and emojis are generation text and modern forms of communication. Furthermore, through emojis, people can show sarcasm and introduce modesty to reduce the severity. It is also used to make messaging and chatting fun, as well as to entice people by spilling text with visual embellishments. Non-verbal cues (sentimentality and emojis) are also sometimes used to initiate and end a conversation. Research has found that it is used when people do not know what they want to say in particular messages or are not able to say anything. Not only this, but people also use it to avoid conversation.

In 2008, Azuma & Ebner (2008) said that in order to address languages and cultural differences, online graphics could become a common symbolic language (Azuma & Ebner, 2008). Similarly, this study found that now people frequently use digital non-verbal cues during chatting and messaging. which shows that a new common symbolic language is formulated by ICTs. The experts of the current study also conclude that emojis are replacing words and sentences in digital communication. Emoticons and emojis are a graphic and illustrated representation of words and sentences, so everyone, such as literate, illiterate, can understand it and people who do not know different languages. Many studies concluded that non-verbal cues are becoming 'universal Language'. As similar, this study also concludes that emojis are becoming a "universal language but in informal communication." This is also found that people are interacting through symbolism that is also attracting users of ICTs.

8.1.4 Textisms in interpersonal communication

This is found that respondents often use Textisms (abbreviations) in their interpersonal communication. Research has found that the majority of the respondents are using Textisms more informal communication than formal communication. This study leads to the conclusion that textisms have been become a new and stylish way for messaging and chatting, or it may be said that it is only for online communication. These days' new patterns of text such as alphanumericism, acronyms, phonetic, word combinations, shortenings etc are created by users in text communication. It was found that various forms of textisms made communication very easy because there is no need to type full words. Hence, respondents often use textisms during text messaging and instant messaging.

The study concludes that the majority of respondents preferred to type shorts in place of full words during messaging and chatting. It became a new type of language called 'techlingo'. It was found that the respondents in informal communication and only in messaging and chatting often use textisms. Based on experts' opinions and related literature of this study, the research has concluded that textisms only a tech-based language that is for text and informal conversation. It is not for written and formal communication. It was also found that if the textisms are used intentionally, it is okay; otherwise, it will become a problem for adults, and adults may face problems like spelling mistakes, word pronunciation, etc.

Research also found a significant behavioral change that respondents are often preferring Text messaging and chatting to talking on the phone as compared to face-to-face. There is a strong observation of data that now users are preferring text messaging instead of calling. The advancement of text messaging and instant messaging and their attractive features are now also replacing voice (talk on the phone) communication. The study found that text-based messaging is convenient, easy, and fast. This can also happen when someone is eating, walking, enjoying a party with friends, attending class, spending time with friends and family, and when someone is secretly want to communicate something. All these features make text-based communication unique and attract users. Besides this, there are no boundaries of an immediate reply. The researcher found that most of the respondents use text messaging as it saves time. They use it to be regularly connected with friends, family, relatives, and others.

The Researcher found that 83% of text messaging content involved abbreviations and shortenings. 17 % of the content found that no use of abbreviations and shortenings (textisms) because that is a formal type of texting. It found that 76% of individual contents mix of standard and non-standard spelling. On the basis of data and its result, the age group 18 to 24 years old are using more textisms in their text content than other age groups. This research concludes that it seems people are accepting new technology in the personal communication process. The researcher noted that all types of textisms are new technology-based language, or we can call it “techlingo” for text communication in a fast and simple way. The researcher also found that all types of textisms were intentionally associated with a spelling mistake while it is not affecting with written spelling ability. According to Ling & Plester et al, females use more text with textisms (Ling, 2005; Plester et al., 2009). However, in this current study, the researcher noticed that males and females equally use textisms during text communication, which is a different and new aspect of this study. The nature of the sample and time gaps may be the reason for these differences. This shows that there is no gender effect on the use of textisms during text communication.

8.1.5 ICTs and Individuals Behaviour

The study concluded that heavy users of the internet and social media mostly faced anxiety-related problems because they are habitual to regularly connect with others and they expect the same from others. If they do not get the same response then they feel ignored. If someone is facing failure or hurdles in his or her career at the same time when he/she saw some is posting or sharing their achievements on social networking sites, can be a cause of anxiety or jealousy. The study found that depression and stress associated with increased and decreased use of social media. It is found that the excessive use of social media creates sleep-disordered and other problems. The heavy use of social media has created overeating or less eating, laziness and suicidal risk in young adults. Because of it, people are avoiding physical and other activities that become the reason for the lack of mental health and self-development. Besides this, the fear of missing out (FOMO) also found the reason for behavioral change. FOMO has been associated with intensive use of social media and low humor and life satisfaction. It was found that always being online is creating feelings of anxiety, loneliness, and inadequacy.

The study also concluded that the internet and social networking sites also a reason for poor self-esteem and self-image. The excessive use of social media is creating the behavior of cyberbullying, which is the reason for social isolation and depression. It is found that frequent use of social media is the reason for poor academic records, poor work performance and less interaction in society. By its frequent use, people are less exposed to the real world. This increases their lack of confidence in the real world. It is found that the internet affects deeply individual's behaviors. There is a case of two brothers that was published in the Times of India report, February 2019, they were addicted to gaming. Report said that they had no time for studies, meals, bathing or changing clothes. They slept fitfully, ignored phone calls and the doorbell, and twice turned a blind eye to robbers cleaning out their house. The most odious symptom of their decline was the habit of defecating and urinating in their clothes while playing. This shows the dangerous consequences of the overuse of ICTs. The research has proven right that information and communication technologies are affecting individuals' behaviors in positive and negative both ways. This study concludes that the excessive and uncontrolled use of the internet and social networking sites not only affects behavior it also creates psychological problems.

8.2 Executive Summary of the Research

The research on the topic *“Uses and Effects of Information and Communication Technologies in Interpersonal Communication: A Study in Delhi”* has been done. The main aim was of this research study to find out the reason of the use of information and communication technologies in Interpersonal communication and to identify the effects of ICTs on individuals' behavior and communication process.






The **first** chapter, entitled 'Introduction,' explores the terminology definition of communication, information and communication technologies, interpersonal communication, and Technology-Mediated Communication. This chapter deals with the rationale of the study, research problems, the significance of the research study, aim and objectives, and hypotheses of the research study. In addition, the next part of this chapter discusses the research methodology of this research study.

The **second** chapter focuses on literature related to the research study. It began with the tools of information and communication technology, which plays an

important role in interpersonal communication. It explores the various aspects of social networking sites and finds out the reason for the uses and effects of it on users.

Chapter **three** discusses the Interpersonal Communication. It focuses on the concept of interpersonal communication. This helps to understand the basics and core concepts of interpersonal communication. This chapter explains the form and function of interactive communication spots with elements and heads of interpersonal communication.

In chapter **four**, the researcher has discussed the role of ICTs tools and techniques in maintaining interpersonal communication through practice. This chapter also focus on how and why technology-mediated forms and patterns of communication affecting and replacing face-to-face communication. This chapter also have explored the type and kind of research that affects the individuals' behaviours. Further, there is a detailed description of text messaging, instant messaging, Hyperpersonal communication, social networking sites, phubbing, and FOMO (fear of missing out).

Chapter **five** includes the forms and function of Non-verbal cues (emoticons , ;-), and emojis , which significance as communication. It provides the in depth study about the emoticon and emojis as communication tools with emotions and sentiments. It explores the meanings and functions of emojis , as follow by the emojiopedia. Based on the various studies, it highlighted the different vendors are designing their own style of emojis , which are having a different meaning of the same emotion that is a cause of the miscommunication of the message. It also explores the emoticon and emojis  as a new communication pattern for communication. Further, it studied the various paradigms of non-verbal cues as universal languages. It explores the aspects of the non-verbal cues and perspective of the replacement of words and sentences during text communication.

In chapter **six**, the researcher has explored the various paradigms and aspects of Textisms (lol, cu, kk, omg) as communication patterns. This chapter also explores the forms and functions in detail of textisms. In continuation, it also explains the mediated writing periphery, cultural transmission of text, and aspects of the text-based linguistic corpus. Further, it describes the commonly used textisms word and sentence based on related studies.

Chapter **seven** covers Data Analysis and Interpretation of the collected data from the field survey. Further, the next part of this chapter explores the experts' opinions and views on the research problem. In addition, sentiment and semantic analysis of non-verbal cues, which sometimes lead to misunderstanding, is noted in this chapter. Besides, this chapter also focuses on the structure and analysis of textisms content based on various aspects of the English language.

Chapter **Eight** begins with the Findings of the research study. It explored the findings based on objectives. The last section of the chapter explores the recommendation, delimitation, limitation, and future extensions of the research study.

Chapter **nine** discusses the conclusion of the research; it develops insights about the usage of various variables of information and communication technologies for interpersonal communication. It explores the facts of information and communication technologies as a communication platform.

8.3 Contribution of this Research study in Society

1. The major contribution of the study for society will be that it will make people aware about the outcomes of uncontrolled and overuse of Internet and social media, such as uncontrolled behavior, loneliness, depression, substance abuse, social isolation, poor academic performance, work performance, and mood change disorders.
2. This research will make aware to people about the new and innovative pattern of communications, which people are using frequently but do not know the actual names and forms of it, for example, forms of textisms.
3. This research will introduce society to the over-involvement of the internet and social media in their lifestyle that will make people aware of the over-dependency and its side effects. As well as it will also convey how it is helping us in day-to-day life.
4. This research will help in understanding the advancement and use of technologies in communication and bring out new perspectives of it.
5. This research will help policymakers to plan a code of ethics for use of ICTs. It will also guide concerned authorities, other organizations (like NGOs), and families about both effects that how it is helpful and harmful to youth as well as for society.