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"THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE IMPROVEMENT OF HUMAN INTERPERSONAL COMMUNICATION"

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***ABSTRACT**--Technology has become a tool for simplifying communication. The world is no longer bounded by geographical restrictions and there is no limit to how much messages people can send. With just one or multiple clicks, people can easily connect. Aside from that, there is more than one method to contact, a variety of communication content, and a bigger audience to influence (Sharma, 2018). Despite these, there are also criticisms on technology, stating that it hinders the quality of interpersonal communication. This claim is only subjective and is based on fear of change, especially those who are in areas who have not yet embraced the benefits of technology (The NYU Dispatch, 2018).*

***Keywords**--the role of artificial intelligence in the improvement of human interpersonal communication*

I. INTRODUCTION

Interpersonal communication is the process of exchanging a message between two or more people. It can happen verbally or non-verbally, synchronously or asynchronously. This is a type of communication we use most of the time, and it starts when messages are sent and received (Bajracharya, 2018). In this digital era, communication is undeniably more convenient.

Technology revolutionized the process of communication and will continue to. According to Ramey, the way people communicate will change due to emerging technologies and it will be our decision whether we adapt to it or not. The most apparent technology as of today is artificial intelligence or also known as "AI". The word "artificial" is used because it is not real and is only simulated to act as a substitute. On the other hand, the word "intelligence" refers to its logical operations to perform a specific task such as problem-solving and learning. The idea of intelligence simulation started in 1936 when a British code breaker, Alan Turing, invented a computing machine (also known as Turing machine) that can perform an algorithm's logic no matter how difficult it is. He

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then concluded that an electronic device can function as if it has a brain. In 1939, Alan Turing and his fellow Gordon Welchman invented the Bombe which successfully encrypted 'indecipherable' codes from the Enigma machine used by the Germans during World War 2 (Chisling, 2017).

Due to various researches and inventions by the world's information technology (IT) experts, AI has successfully paved its way into the world and transformed various fields through its beneficial contributions. One such advantage is communication— the heart of human interaction and an influential factor in learning. Since old forms of communication have become outdated, each generation is prompted to use new technologies to build connections more efficiently (Phillips, 2018). As technology advances and dependency on it increases, the role of AI in communication gets enormous and crucial.

AI is the simulation of human characteristics and the acquisition of human intelligence. These machines are designed to communicate with users in a human-like way. Examples of these are the translation of human languages like Google Translate, speech recognition or spoken dialogue systems like Siri or Alexa, chatbots in mobile commerce, and even humanoid robots like Sophia.

At the end of this study, its readers are expected to understand the importance of AI-powered devices, software, and applications during interactions not only of technically inclined people but everyone who uses communication either for convenience or enhancing interpersonal relationships. This research analyzed the role of AI in the communication field to attest that technology helps people engage in informative discussions and create more meaningful conversations. Moreover, this may also serve as a reference for future research studies and related topics.

As the birth of AI brought interest and controversy to the world, questions and assumptions about future possibilities of the technological world have arisen. Discussions about opportunities, challenges, and threats diversely affect the opinion of the public regarding the subject. Although the future of AI is uncertain, its present contributions to the field of communication are undeniable. Despite of the fixed assumptions about AI, the researcher believes that AI technology has the ability to improve the quality of communication among people.

Through the stated problem above, the researcher was able to determine its general research objective which is to analyze the role of artificial intelligence in improving interpersonal communication skills. Specifically, this study aims to answer the following research questions:

1. Determine the factors that hinder an interpersonal communication process, both in virtual and face-to-face scenarios;
2. Identify current contributions and major goals of artificial intelligence in communication technology;
3. Explain how artificial intelligence can strengthen human interpersonal communication.
4. Formulate ways to help communicators benefit from the deep-learned knowledge of artificial intelligence.

The study will be beneficial to the following,

STUDENTS:

That it may serve as a tool for them to learn more about artificial intelligence as a field, a possibility, and a window to the future. As they are often exposed to technology, knowledge about AI will help them use it responsibly, especially for academic activities.

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TEACHERS:

This study aims to prevent AI skepticism in the academic setting. As the field of AI is still at its early stages, teachers also have a vital role in research and development by allowing students to conduct further studies about it.

GOVERNMENT:

This study may serve as a call for the government to further AI researches as well as investments due to the apparent contributions of AI not only in the business sector, but more so in general communication.

FUTURE RESEARCHERS:

This study will serve as a reference for them as studies on AI in both virtual and face-to-face communications are not yet apparent. The author of this research focused on the usefulness of AI despite negative impressions about it. More intensive and extensive researches are needed to contribute to the AI field.

GLOBAL CITIZENS:

This study will serve as a motivation for all communicators to take AI as a tool and not as a threat to humanity. By spreading this kind of research, people would be able to comprehend not only the history and nature of AI, but most importantly, understand its thriving existence in the modern world.

This study on 'The Role of Artificial Intelligence in the Improvement of Interpersonal Communication' covered the nature of AI, common fads and misconceptions about it, current AI technologies and its contributions for the betterment of human interactions, barriers that hinder its improvement, and plans of multinational technology companies concerning the use of AI in communication.

This study is delimited to selected individuals who have access to AI from diverse cultural and occupational settings. The number of interviewees depended on the number of willing participants. The researcher conducted face-to-face interviews as well as online interviews via online messaging applications or e-mail. The flow of the interview revolved around the interviewees' knowledge and opinions on the subject, and most importantly, their related experiences. Moreover, most interview questions were semi-structure.

The findings of the study synthesized in this paper are highly relevant to the researcher's subject. In 1956, artificial intelligence was founded as an academic discipline and over the past sixty years, its advancement is noticeable. However, only a few AI systems became known to the public since it is not easily accessible across all countries. According to Bhukan (2018), data privacy, return of investment, and readiness for acceptance are major factors to be considered before adopting artificial intelligence.

AI systems deal with a large amount of data; however, due to privacy issues and threats, some people are being skeptical about it. The success of AI implementation depends on the trust, confidence, and support of the people. Therefore, it is suggested that restrictions on personal information must be enforced in the virtual world (Bhukan, 2018).

AI ventures require budget depending on the size of the industry. Since it is considered as high technology, AI could be expensive and large investments are expected. As of 2019, China and the United States are the two giants in terms of AI leadership. Japan, Canada, Israel, Estonia, Russia (Minevich, 2017), South Korea (Walch,

2018), United Kingdom, Australia, Germany, France (Hupfer, Jarvis, Loucks, & Murphy, 2019), Denmark, the EU Commission, Finland, India, Italy, Kenya, Malaysia, Mexico, New Zealand, Nordic-Baltic Region, Poland, Singapore, Sweden, Taiwan, Tunisia, and the UAE (Dutton, 2018) are exhibiting AI maturity and interests. Meanwhile, in the Philippines, AI startups are quite noticeable. The country started to use customer service robots and data analytics for customer-relationship management (CRM) systems, security robots for residential and commercial buildings, virtual assistants, and devices with voice, [haptic], and facial recognition systems. The Philippines is still in the progress of integrating itself in the industry (Macky, 2018).

The value of AI differs among a group of people. AI adoption means an eventual change in organization and culture (Srinivasan, 2019). Since people have common fads and misconceptions regarding AI, its nature is generally questioned. These mentioned factors challenge the widespread implementation of AI.

Due to these reasons, the researcher aims to contribute to the research and development of artificial intelligence, both in the local and international community. AI is not the usual topic of interest of most researchers because aside from its complexity, some are filled with skepticism. Thus, the researcher decided to conduct this study in order to explain the subject, clarify some concepts, and formulate ideas concerning the topic.

Various studies were conducted for AI research and development but the effect is still subtle. Common AI research topics are mainly about e-commerce, healthcare, gaming, robotics, autonomous cars, deep learning, data mining, etc. There are only few pieces of research related to artificial intelligence and communication, however, those researches only focused on computer-mediated communication (CMC) and social media. The researcher believes that AI is helpful not only in the digital world but also in the real world. Due to this reason, this study emphasized the role of AI in human interpersonal communication. This study also aims to contribute to the AI field, communication studies, and the global community. Communication is part of life—it happens continuously and it is essential in a community. Therefore, people must realize how innovations such as AI can change the communication process.

Technological determinism

According to the aforementioned theory by Thorstein Veblen, the technological progress of a society is the primary factor of change in a social environment. This theory is called ‘Technological Determinism’ or also known as the ‘Medium Theory’ which states that there is a link between technology and society and that link determines development (Kline, 2015). It mirrors the history and shapes the future of a community.

Technological determinism is divided into two levels: hard determinism and soft determinism. Hard determinism is the belief that technology is the sole determiner of change and this causes division among communities or what theorists refer to as the ‘Great Divide’. The introduction of technology forces itself in society, making people adapt to it or ignore it. On the other hand, soft determinism is the belief that technology is only a facilitating factor and is working along with other primary factors (Chandler, 2012).

The theory is later developed by Marshall McLuhan (1964) who stated that “the medium is the message” which brought confusion since medium is often referred to as the channel of communication. However, the English professor meant that how we deliver our message and what our message is form the content of the whole message. This notable phrase supported the researcher’s claim that AI plays a major role not only in the construction of messages but more importantly, in the initiation of interaction.

This study focused on the role of artificial intelligence in the improvement of human interpersonal communication. Thus, the theory of technological determinism became the foundation of the topic as it emphasizes the influence of technology in communication. AI is a major innovation in technology and it has changed the way people communicate over the years and continuously working on to make changes.

Furthermore, this study used soft determinism as the researcher believes that technology is not a singular actor in the play of societal development. Technology is one of the contributors to change and its impact on human interpersonal communication is apparent. Therefore, this study is centered on technological advancements

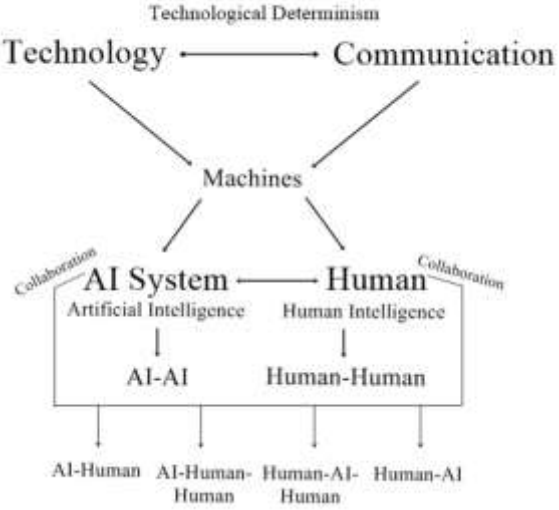

Figure 1: The graph above illustrates the relationship

that are beneficial in the communicative world.The graph above illustrates the relationship between two variables and how the first variable can manipulate the other one. By observing the flowchart, technology plays a major role in the field of communication. Technology and communication have social actors and both variables are considered 'machines' as AI systems as well as humans have the ability to think—either artificially or realistically. Artificial intelligence is under technology and it is also involved in the communication process. Automatically, AI can interact with an AI even without human supervision since it is automated beforehand. On the other hand, a human— being a natural communicator— can interact with another human. However, the chart concluded that communication can be collaborative—making an AI system and a human may depend on each other throughout the communication process. As a result, AI to human interaction, AI to human to human interaction, human to AI to human interaction, and human to AI interaction are possible. These types of interactions occur depending on the communication set-up.

We live in an era where the acquisition of intelligence is not limited to humans. Machines can also acquire it, however, in a different way. Humans learn through patterns while machines are trained using large data sets. Once trained, both have the ability to perform calculations, learn languages, use reasoning, comprehend ideas, understand relationships, store, and recover information, and perceive new situations. Specifically, humans and today's machines are capable of learning (auditory, episodic, motor, observational, perceptual, relational, spatial, and stimulus-response), problem-solving, perception, and linguistic intelligence. Thus, the difference between the

two is not about what type of information they obtain, but 'how' information is gained, interpreted, and organized (Tutorials Point, 2015)

II. HISTORY OF AI

The idea of intelligence simulation began in 1936 but actualizations started in the 1950s. The term artificial intelligence was first coined in 1955 by John McCarthy, an American mathematician, and a computer scientist. The following year, McCarthy organized a summer workshop or also known as the Dartmouth conference and introduced AI as a field. The AI pioneer also created a computer programming language called list processing (LISP) in 1958 which contributed greatly to the field as it was designed to manipulate data by using symbolic expressions (Encyclopædia Britannica, 2019). Moreover, he initiated the development of AI by simulating human intelligence into machines. Due to his invention and philosophy, McCarthy is considered as one of the founding fathers of AI (Tutorials Point, 2015).

III. GOALS OF AI

The reason behind the continuous advancement of AI is due to its major goals. The first goal is Knowledge Representation and Reasoning (KR&R) which aims to solve complex problems using stored and processed information about the world (Ivankov, 2019). Knowledge must be presented formally in a way that machines can understand and interpret data correctly. In this way, AI-powered systems will be able to perform problem-solving (Skerrit, 2017). The second goal is Automated Planning and Scheduling which implements strategies in AI-powered devices to automate actions such as computer suggestions, corrections, and gathering of information. This subset of AI is widely used in the creation of online intelligent agents and chatbots that help assist customers and engaging website visitors. The next is Machine Learning which is also a helpful subset in AI (Ivankov, 2019). It allows computers to learn information automatically and train themselves without human supervision. The fourth is Natural Language Processing which helps computers decode and comprehend human languages in order to create a more meaningful interaction. The next is Computer Vision which deals with the identification of visual images that are necessary for computers to recognize. The sixth is robotics (Ivankov, 2019). Robots are usually seen in corporate settings being assigned to do basic customer service or greet employees. However, there are different kinds of social robots. There are robots that are used for customer engagement, and there are also for telepresence, tutoring, and companionship. Social robots are designed not only to perform tasks for humans, but also have social interaction with humans, and most importantly, improve the quality of human-to-human interactions. Examples of these are interactive robots named Bandit and Tico. Bandit helps autistic children to improve their communication skills and boost their confidence during social play, while Tico assists teachers in understanding and motivating students to have meaningful discussions (Rouse, 2019). Additionally, robots can also be language partners just like The Lesson Pod of Casio to make language-learning more convenient (Bolton, 2017). The last one is the long-term goal which is Artificial General Intelligence. This subset of AI is the highest

level in which computers will be able to perform any intellectual task that a human can do (Ivankov, 2019). Thus, these AI-powered systems will be considered not only intelligent but superintelligent. However, the current state of AI is still far from it (Shrivastava, 2019).

As machines get smarter, the future of the world with AI is not difficult to predict. These major goals of AI are currently being worked on to achieve the vision of an advanced lifestyle. The main purpose behind these innovations is to help humans accomplish different tasks in a shorter period. The tasks domain of AI includes mundane or ordinary tasks, formal tasks, and expert tasks which means that it aims to aid different people in different fields (Zandan, 2019).

As of today, AI is focused not only on assisting its users but more importantly, helping them to improve their communication skills (Zandan, 2019). Communication entails connection, and while we are in the age where the Internet broadens that connection, artificial intelligence makes it personal and even allows customizations.

IV. INTELLIGENT AGENTS

Unlike general intelligence, social intelligence is commonly present in machines and software. This type of intelligence creates systems that have empathetic features such as being able to recognize, understand, interpret, and respond according to the users' emotions and needs. Closest examples of this are intelligent agents programmed in various devices to solve specific requests. These intelligent agents consist of artificial neural networks (ANN) to imitate the human mind. These agents are also capable of learning (Vadim, 2019). As a result, perceiving the situation and taking actions will be possible for AI systems.

Intelligent agents are also called as 'intelligent personal assistants' (IPA) or digital assistants and are commonly found on most smartphones. These assistants are software-based that are designed to help its users in accomplishing tasks online which include answering queries, messaging, managing schedules, uploading or downloading content, and more. In a survey conducted by Perficient Digital in 2019, researchers asked 1,719 participants regarding how comfortable they are in using digital assistants like Google Assistant, Siri, and Alexa. The results revealed that 78% of the population answered that they are comfortable with it, 13% are not, and 9% are uncertain (Enge, 2019). Moreover, a study conducted by Adobe Analytics showed that the top five (5) digital assistants are Amazon Alexa, Google Assistant, Apple Siri, Microsoft Cortana, and Samsung Bixby. The study concluded that Alexa is the best for device compatibility, Google Assistant is the best at responding, and Siri is the most popular digital assistant (Dennon, 2019).

Many people are accustomed to using AI assistants nowadays as it makes almost every task easier. Facebook Messenger, being the world's second most used messaging application (Clement, 2019), also has a built-in digital assistant. The virtual assistant is called 'M' which offers suggestions throughout conversations. When user A clicks the shared chatbox with user B, options such as the 'wave' button or a 'happy birthday' greeting will be provided by M assistant. In this way, user A can start a conversation with user B and even make the message seem personal and thoughtful. M also based its suggestions on the users' choice of words or construction of sentences that enable it to extract information and interpret different situations. As soon as M recognizes something it can help with, the suggestion appears. M can suggest appropriate stickers, share location, request or send payment, make plans, or

even create polls. M simply recommends tasks that are applicable to certain scenarios and prompts users to perform it (Wiercioch, 2018). This feature helps users to have good and realistic conversations even in the virtual space.

Additionally, Facebook also stated that embracing artificial intelligence can bring the world closer together as it makes everything conversational (Facebook AI, 2019). Aside from its digital assistant, Facebook also focuses on natural language processing (NLP) and speech and audio which aim to break barriers among people around the globe.

According to Enrico Plateo (personal communication, June 1, 2018), a European business development manager of Tencent, stated in Conversation event that messaging apps like WeChat offers a variety of experiences among its users from daily transactions and purchases to personal relationships. Through digital interactions, users still have the possibility to develop a specific interpersonal relationship with other users even if there is no physical presence. Exchanging of content is continuous—physically and digitally—so that people will always be in contact with each other. By having an offline and online connection, there will be continuity of conversations as well as relationships.

V. ACCESSIBILITY AND INCLUSION

Almost all smartphones are designed with AI features to give its users a better experience. However, not all devices with this type of feature are accessible to all types of people. It is challenging for people with vision and hearing impairments to interact in the physical world, but more so in the virtual world. It is a struggle when blindness and deafness hinder people to relate to their surroundings and be able to start or engage in conversations about it.

Digital companies like Facebook and Microsoft started to implement innovations that will improve the quality of interpersonal communication of people with such conditions. In 2016, Facebook introduced the automatic alternative text which translates photos into audio descriptions so that users with vision impairment will be able to hear what they want to see. This is a major improvement from the screen reading feature which only recognizes text such as the name of the person who posted the visual content. Now, they could hear what is in the photo itself. For instance, someone could now hear, “Image may contain four people, smiling, boat, trees.” This feature is made possible using computer vision ability or object recognition technology (Wu, Pique, & Wieland, 2016). By using this, people with such conditions will still be able to interact with their family and friends even in the digital space. However, descriptions are only limited as it can only recognize less than a hundred objects and activities, according to a BBC report (Baker, 2016). On the other hand, Microsoft released Seeing AI which is an AI-powered mobile application that completes basic tasks such as reading short texts and handwritings, converting pictures of documents to text and audio, perceiving color, describing photos, describing the scene a person is in, scanning product barcodes, identifying currency bills, and recognizing faces of people including their emotions and proximity. This application narrates the world around a person and it can be helpful especially when initiating interactions with other people and the environment. Additionally, an online community for people with vision impairment also exists. It is called Be My Eyes, an AI-powered mobile application wherein people who are blind or have low vision can ask help from people who downloaded the application who act as ‘volunteers’ through video calls. The purpose of the interaction is to help people with such conditions to complete their daily tasks,

especially when those tasks need to be explained in detail. It is purely a human-to-human interaction unlike Seeing AI, and it is different from other messaging applications since it can connect a person to anyone in the world. This application encourages small acts of kindness and even features stories about formed friendships among its users from around the globe.

As for the deaf community, Microsoft partnered with Rochester Institute of Technology (RIT) to release AI-powered captions and translators that can be helpful during lectures and presentations in the academic setting. There are nearly 700 students who are deaf or have difficulty in RIT and so these students rely on the class interpreter. However, some students still struggle because not all of them are fluent in American Sign Language (ASL). In an interview conducted inside the institution, students agreed that the availability of real-time captions on PowerPoint presentations and transcripts on their mobile phones would make their learning environment more engaging and highly effective (Roach, 2018).

There are already a number of AI-driven companies working on innovations to improve global connection. What hinders interpersonal communication is human diversity. It is the most common barrier existing in the real world—from language to culture to personality to generational (Dowd, 2018). It is not accessibility that is the problem anymore, it is accuracy and appropriation. Therefore, AI must provide solutions that can cope in any type of situation and different types of people.

VI. NATURAL LANGUAGE PROCESSING

Artificial intelligence systems can contribute to the improvement of human interpersonal communication as it can act as an assistant during online interactions, translator, tutor or partner during language courses, or an accelerator throughout a communication process. The usefulness of AI is only measured by human standards. This is the reason why AI needs to learn and develop natural language capabilities. Natural languages are human languages, and if AI systems are only aware of computer languages, then there would be no understanding between the two machines. According to Teahan (2010), the design objective for AI is for it to be knowledgeable by only containing and using the knowledge that can be perceived by humans. If an AI-powered device and the user understand each other, then the two will be able to interact with each other and start other interactions. If AI fully understands all human languages, a simulated emotional quotient (EQ) can be developed. AI, with only machine intelligence, is already making communication more—not less— convenient and enjoyable. Imagine if a simulation of EQ is inputted into AI systems. The field will give birth to an empathetic AI system and it might be revolutionary. However, just simulated intelligence quotient (IQ) is enough to improve human-to-human interactions.

VII. COMPUTER-MEDIATED COMMUNICATION

It is evident that technology is frequently used in communication, and as it becomes more intelligent through the years, the way people communicate also changes. Technology and communication collaborate daily to create interactions without worrying about communicators' distance and location. Thus, delivering a message will not take as long as sending handwritten letters back in the day. This concept is called 'computer-mediated

communication' (CMC) which allows conversations to occur through telecommunication systems using various applications or software. Lickider and Taylor (1968) defined CMC as a "natural extension of face-to-face interactions". Furthermore, since artificial intelligence is a major innovation in technology, this means that it also plays an important role in communication.

VIII. METHODOLOGY

The method used in this study is qualitative in approach. A quantitative type of research makes use of words, symbols, descriptions, and concepts instead of numerical data to analyze a phenomenon and create an interpretation. Hence, this research did not use statistical tools. Instead of large data sets, small and focused samples were used throughout the process. The researcher classified the immeasurable data into patterns in order to make interpretations and draw conclusions. In-depth interviews were conducted among selected participants in order to extract information and insights regarding the subject. The participants' perceptions and experiences were compared to the gathered data in the first chapter and the results became the basis of the researchers' conclusions.

The research design used in this study is descriptive. Since the topic is regarding the role of artificial intelligence in the improvement of human interpersonal communication, the researcher explained the nature, areas, and applications of AI in the digital and the real world. Additionally, the respondents came from diverse cultural and occupational settings in order to understand how AI is perceived by different people in different situations.

The gathering of data took place within the vicinity of San Jose del Monte, Bulacan. Since the in-depth interview involved people from diverse cultural and occupation settings, the researcher did not observe such boundaries. However, those who were within the vicinity were interviewed personally. The proximity of selected respondents did not become a problem as long as they are knowledgeable about AI, have access to such devices or software, or just display interests toward it.

The researcher did not set a limit for the number of interviewees. However, only related answers were utilized in this study to avoid ambiguous conclusions. The interviewees were chosen according to their level of interest in the topic, subject of expertise, and frequency of usage of AI devices or software.

The process of data collection was done through e-mail, messaging applications, and face-to-face discussions. The respondents were contacted first by the researcher and get their consent beforehand. The topic was explained to them briefly so that the connection between the two variables is clearly understood.

The type of interview questions was open-ended rather than a straightforward exchange of questions and answers. The interview questions were also semi-structured yet still guided by the research questions. This type of data gathering made the interviewing process easier, more comfortable, and open to related ideas. However, some questions directly followed the guide questions due to the agreement and affiliation between the researcher and the participants as time availability of the interviewees was also considered.

IX. RESULT AND ANALYSIS

This part of the paper responds to the stated objectives in the preceding paragraphs: 1) determine the factors that hinder an interpersonal communication process, both in virtual and face-to-face scenarios; 2) identify current contributions and major goals of artificial intelligence in communication technology; 3) explain how

artificial intelligence can strengthen human interpersonal communication, and; 4) formulate ways to help communicators benefit from the deep-learned knowledge of artificial intelligence. In order to obtain answers, the researcher has constructed guide questions for the data gathering process. The interview process was semi-structured and structured since the researcher adjusted the flow of the conversation to the mood, character, and availability of the participants.

The set of questions was organized but its delivery was personalized due to cultural differences. To get the pulse of the interviewees regarding the topic, the researcher first asked the participants about their insights upon hearing the term 'artificial intelligence' or 'AI' to know whether they show optimism or pessimism toward the subject. The next question was intended to determine how immersed the participants in AI-powered devices and services and get background about their AI usage and engagement. The next one was intended to know two things—how aware the participants are with the current contributions of AI and if they consider the potentials of AI in improving communication. This question was intended to answer the second objective of the paper. The next one was intended to identify the common problems during the process of interpersonal communication by asking for their subjective opinion pieces and first-hand experiences. Upon knowing the problems, the researcher asked how AI has solved or can solve such indicated problems to emphasize how AI has been useful or effective as one of the tools in improving communications. These questions were intended to answer the first, second, and third objectives. The researcher also mentioned the negative insights of some people towards AI which affects their trust and confidence in it. Along with this, the participants—who believe in the potentials of AI— are asked how they would be able to introduce the benefits and possibilities of the innovative system to those who are skeptical about it. The last question was intended to know their expectations or prospects on the future AI in communications; this also aims to answer the fourth objective of the paper.

The answers were sought from participants with different demographic characteristics—age, sex, educational attainment, occupation, and nationality. The participants are ages 18 to 35 and there are a total of 10 people: 1 from the Philippines, 1 from Malaysia, 1 from Korea, 1 from the United States, 1 from the United Kingdom, 1 from Canada, 1 from Italy, 1 from Bulgaria, 1 from Syria, and 1 from Morocco. Additionally, the researcher also obtained answers from 1 AI firm in the Philippines. Therefore, a total of 11 participated in the study.

Respondent 1 is a college student from the University of the Philippines who majors in Linguistics. Respondent 2 is a graduate of Energy Material and Chemical Engineering from the University of Kuala Lumpur and is currently pursuing a Master's Degree in Engineering at Korea University of Technology and Education. Respondent 3 is in secondary high school at Daegu Science High School. Respondent 4 is currently at a senior level in Marketing and Business Analytics at the University of South Carolina. Respondent 5 is an architect from Sheffield, London. Respondent 6 is a Film major in Calgary. Respondent 7 is a travel coordinator at WeRoad in Italy. Respondent 8 is a pharmacy student at Al Andalus University in Bulgaria. Respondent 9 is a Ph.D. student in Communication and a Public Relations (PR) and Marketing consultant in Syria. Respondent 10 studies Engineering at ENSAM de Casablanca in Morocco. Lastly, Respondent 11 is Senti AI—the pioneering AI company in the Philippines.

Based on the data gathered, most of the participants think of AI as beneficial and powerful as it is used to make repeated, efficient, and scalable decisions from massive amounts of data. However, since AI systems are

developing too fast, it can be invasive and dangerous at the same time. Due to the amount of literature that addresses such arguments, most of them believe that AI will soon replace humans in the workplace or lessen human contact. Some think that AI is far from being perfect because it is still quite difficult for it to grasp context and sarcasm.

The next results state that the participants are all exposed to AI technology due to the presence of its features on all their gadgets. The most commonly used AI features are virtual assistants, voice recognition, predictive search, recommendations, and e-mail filters. The participants also agreed that AI plays a vital role in improving human interpersonal communication as it allows not only human-AI communication but also human-human through AI. They also added that due to existing AI features such as quick messaging, scheduling assistants, and immediate translators, its users can easily contact other people without worrying about the geographical distance, time zones, and even language differences since learning a foreign language takes time as well as effort.

Transactions can also be done through AI applications that offer financial services or online payments. AI also allows humans to start and continue conversations— from personal to virtual interactions and vice versa— through chatbots. Lastly, AI allows people to improve their communication not only because it is a convenient method, but also because it packs a huge amount of filtered information that is made accessible just by using the Internet.

According to the participants, if a small portion of these large pieces of information is to be learned, one's knowledge might expand and help them comprehend other people better. Respondent 9 said that learning could mean understanding more. The participants also mentioned that the common problems in human communication include language barrier in which AI aided by providing auto-generated captions, immediate language translators, and virtual language partners; short, neutral, and less personalized conversations between people which led AI to insert pools of reactions, emojis, stickers, empathy phrases, animated images, and other appropriate pop-ups; and lastly, miscommunication and misinterpretations especially because of cultural differences which AI has not yet solved but can 'possibly' solve as it is still learning. This may be possible if AI will make efforts in learning human diversity.

The participants also noted that it is normal to have such negative impressions about AI since it is often entailed with myths and exaggerated threats. However, users must be slowly brought into the idea of AI and use it to their advantage and comfort along with caution, responsibility, and limit.

Lastly, the participants mentioned what current AI technology needs to further improve: language translators, virtual sign language interpreters, and other AI gears and applications that can help differently-abled people and those who suffer from diseases that affect their speech such as Amyotrophic lateral sclerosis (ALS) patients. They noted that although some of these already exist, its accuracy, reliability, and universality should be developed.

X. DISCUSSION

1. Artificial intelligence (AI) is the simulation of human characteristics and the acquisition of human intelligence. These machines are designed to communicate with users in a human-like way.

2. The role of AI in communication is vital as it is being utilized as one of the tools and not only the tool in improving the communication experience between humans. The communication process can happen verbally

or non-verbally, synchronously or asynchronously. It takes place in real life as well as in the digital world—and these two distinct environments are connected. Thus, the entrance of AI is inevitable and will continuously transcend the virtual space.

3. AI has 7 subsets that are helpful to improve communication— Knowledge Representation and Reasoning (KR&R), Automated Planning and Scheduling, Machine Learning, Natural Language Processing, Computer Vision, and Artificial General Intelligence.

4. This study sought to determine the factors that hinder an interpersonal communication process, both in virtual and face-to-face scenarios; identify current contributions and major goals of artificial intelligence in communication technology; explain how artificial intelligence can strengthen human interpersonal communication; and formulate ways to help communicators benefit from the deep-learned knowledge of artificial intelligence.

5. This study is supported by Thorstein Veblen's theory of Technological Determinism at a soft level as it states that technology advancements are one of the primary factors of change in a social setting, and these advancements are where AI comes from.

6. AI is generally useful in communication. It may not be as accurate as it is but it advancing the way humans communicate. Just by realizing its current contributions— from virtual assistants to social robots—further innovations in the field can be expected.

XI. CONCLUSIONS

Based on the findings the researcher drew the following conclusions:

1. Artificial intelligence (AI) is innovative yet can be invasive. It has transformed the way humans communicate but it has not yet fully resolved all the barriers in communication. However, the researcher concludes that it has the potential to further develop its system as it already proved itself through immense breakthroughs mentioned in this study. Due to the emergence of new technologies powered by AI, the possibilities are endless. Thus, studies about AI should not stop here— it must continue. AI is vital in communications as it improved, improves, and can continuously improve itself to contribute more to the social interactions between people.

2. Language barrier and cultural differences are the usual hindrancesin a communication process.

3. The current contributions and major goals of artificial intelligence in communication technology include AI-enabled devices, tools, or features such as virtual assistants, virtual language partners, immediate translators, auto-generated captions, recommendations, filters, social robots, and communication aids for people with communication difficulties.

4. AI strengthens communication through continuous exchanging of information—from personal to digital and vice versa. It also makes suggestions to initiate conversations, recommends things that will interest both communication participants, and even personalize messages.

5. The benefit from the deep-learned knowledge of artificial intelligence. The researcher suggests the following: 1) people should be slowly brought into the idea of AI, especially in improving communication

experience, and use it to their own advantage and comfort along with caution, responsibility, and limit; and 2) people should realize that AI for communications is not a substitute for human interactions, but rather, an extension of it.

XII. RECOMMENDATIONS

The following recommendations are based on the researcher's findings. These are:

1. To the students, they should make use of this study to gain knowledge about the nature and purpose of AI and use that knowledge to be better communicators. Since they are the ones who are most likely to be exposed to the latest technological inventions and innovations, students must be aware of its opportunities as well as the consequences in using them. Through the use of AI, it will not only help them communicate better, but it will also challenge and hone their skills in the 21st century as they need to be more competent in various fields.

2. To the future researchers, they should take interest in studying AI because it would greatly contribute to the field. AI is a technological innovation which also needs innovation to be able to contribute more to the world. The topic needs more intensive and extensive researches that will solve real-world problems. Communication is a basic human need and AI has the potential to further improve the experience. Therefore, researchers must seek such possible innovations so that the world will deepen human connections.

3. To the global citizens, they should be always open to great possibilities and opportunities in AI. However, they should also remember that the power of artificial intelligence also comes with great responsibility. Citizens of the world are the beneficiaries of these advancements, however, not every AI tool or instrument can be beneficial if used incorrectly. Global citizens must be aware of its dangers and consequences as well. The content of this study may also contribute to their knowledge as it also discusses the challenges brought by AI.

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