... ZAOULI N°10, Vol. 7, Août 2025, pp. 284-304 ISSN : 2788-9343

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

Artificial Intelligence in a World of Changing Emotions: Reciprocal Influence

Fouad CHIHA
University Centre of Maghnia, Algeria
Email: drfouadch@gmail.com

Ibrahim BENHAMMADI
University of Chlef, Algeria
Email: i.benhammadi@univ-chlef.dz

Abstract:
Since its inception, technology has rapidly employed all possible tools to accelerate communication and production processes and influence the changing emotions of people in contemporary societies, which are characterised by rapid growth, particularly in securing their satisfaction with a given product. In parallel, from the beginning of the last century, information systems emerged that contributed to the development and modernisation of machines by providing them with sufficient information about human interests and about what individuals lack in their private and public lives. The emergence of artificial intelligence, which simulates human thinking and intelligence and translates feelings and emotions into services aimed at customer satisfaction, has therefore exerted a considerable influence on processes of growth and socialisation in present-day societies, which rely on multiple mechanisms and diverse releases. With respect to communication between members of society within the same family, this article aims to clarify the impact of artificial intelligence and its growing capacity on processes of communication and socialisation, such as changing emotions across historical periods, drawing on empirical and theoretical research that we consulted through the Google Scholar platform (Google Scholar). We found that negative impacts may create a deep rift in society as this system develops. Through a narrative reading of the relevant studies and research, we focus, from a research-based and methodological perspective, on the factors of reciprocal influence. The article

employs a theoretical design that utilises available documents obtained through search engines and academic platforms, thereby facilitating an understanding of the approaches researchers use in their studies in this field. This research constitutes an in-depth exploration of the specific impact of artificial intelligence on the process of affective communication in society, as it involves changing, nonstatic emotions that require continual renewal of artificial intelligence programs without interruption to maintain performance. On this basis, the two researchers drew critical scientific conclusions that yielded recommendations that may contribute to formulating feasible societal solutions.

Keywords: *artificial intelligence; emotions; reciprocal influence; Google Scholar platform*

L'intelligence artificielle dans un monde d'émotions changeantes : influence réciproque

Résumé :
Depuis ses débuts, la technologie a rapidement mis en œuvre tous les outils possibles pour accélérer les processus de communication et de production, et influencer les émotions changeantes des individus dans les sociétés contemporaines, caractérisées par une croissance rapide, notamment en ce qui concerne leur satisfaction vis-à-vis d'un produit donné. Parallèlement, dès le début du siècle dernier, des systèmes d'information ont émergé, contribuant au développement et à la modernisation des machines en leur fournissant des informations suffisantes sur les intérêts humains et sur les besoins des individus dans leur vie privée et publique. L'émergence de l'intelligence artificielle, qui simule la pensée et l'intelligence humaines et traduit les sentiments et les émotions en services visant la satisfaction client, a ainsi exercé une influence considérable sur les processus de croissance et de socialisation dans les sociétés actuelles, qui reposent sur de multiples mécanismes et diverses formes d'expression. Concernant la communication entre les membres d'une même famille, cet article vise à clarifier l'impact de l'intelligence artificielle et de ses capacités croissantes sur les processus de communication et de socialisation, tels que l'évolution des émotions à travers l'histoire, en s'appuyant sur des recherches empiriques et théoriques consultées via la plateforme Google Scholar. Nos résultats indiquent que les impacts négatifs peuvent engendrer de profondes fractures sociales à mesure que ce système se développe. À travers une lecture

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

narrative des études et recherches pertinentes, nous nous concentrons, dans une perspective méthodologique et fondée sur la recherche, sur les facteurs d'influence réciproque. L'article adopte un cadre théorique exploitant les documents disponibles via les moteurs de recherche et les plateformes académiques, facilitant ainsi la compréhension des approches utilisées par les chercheurs dans ce domaine. Cette recherche constitue une exploration approfondie de l'impact spécifique de l'intelligence artificielle sur le processus de communication affective au sein de la société. En effet, les émotions, changeantes et non statiques, nécessitent un renouvellement continu des programmes d'intelligence artificielle afin de maintenir leurs performances. Sur cette base, les deux chercheurs ont tiré des conclusions scientifiques critiques, assorties de recommandations susceptibles de contribuer à l'élaboration de solutions sociétales viables.

Mots-clés : *intelligence artificielle ; émotions ; influence réciproque ; plateforme Google Scholar.*

Introduction:

Today, our world, in most cases, when communication among its members takes place, is constrained by the digital world, which is characterised by facilitating the transfer and exchange of language in its structural form. Despite the apparent ease of this matter, research in this field still raises many reflections regarding its role and function within a sociocultural reality that has become more closely linked to information management and the digitalisation of communicative processes in society than to traditional human emotional expressions, whether in formal or informal domains. Since its beginning in the mid-twentieth century, the development of artificial intelligence has marked an important form that facilitates specific processes related to the fields of information technology and computing within the individual function, which is governed by changing emotions in a social communicative environment, making these functions more pressing in terms of serving their own variables. The gradual development of artificial intelligence has enabled its integration into new fields related to information and communication technologies, which in turn rely on individuals' emotions (Pardinas, 2019). Beyond the simple automation objectives of operational processes in the professional field, this development has led to impressive results in a deeper integrative action between purely mechanical or automated functions and the operations carried out by human individuals. This has rendered the field reliable both practically and theoretically, as its results have demonstrated numerous successes and contributed significantly to identifying possible solutions to unresolved

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

problems in the fields of artificial intelligence and professional automation, both historically and to the present day.

The contemporary world is currently witnessing an unprecedented revolution in the field of artificial intelligence (AI), with an intense race towards the development of this trajectory. This trajectory is no longer confined to computational or cognitive tasks but has begun to intersect with the human emotional domain. Intelligent systems have become capable of recognising emotions, simulating them, and interacting with them in ways that reshape the very concept of the relationship between human beings and technology. These transformations raise fundamental questions about how AI affects human emotions and the extent to which machines may possess an 'emotional life' or exert an affective influence on the user. The concept of emotional artificial intelligence refers to systems designed to understand, interpret, and simulate human emotions by analysing facial expressions, tone of voice, and linguistic behaviours (Picard, 1997). These systems rely on advanced techniques in deep learning and machine learning, which allow them to interact in a quasihuman manner. This field has become a central focus in the design of social robots and virtual assistants such as ChatGPT, Alexa, and Sophia, which aim to create a warmer and more human-like communicative experience.

Humans interact with intelligent systems not only at the level of knowledge or performance but also at the emotional level. Studies indicate that users may develop genuine emotional bonds with robots or intelligent programs, particularly when the latter display empathetic behavior or

affective responses (Reeves & Nass, 1996). These interactions can generate positive effects, such as alleviating feelings of loneliness and improving mood, particularly among vulnerable groups, including older adults and children. However, it may also lead to excessive emotional dependence or confusion in perceiving the boundaries between humans and machines (Turkle, 2017). Despite the tremendous advances in affective programming, debate remains as to whether machines truly feel or merely simulate feeling. While AI can analyse emotional expressions and predict affective states, it lacks the self-awareness and inner affective experience that characterise human beings (Damasio, 2018).

This perspective affirms that artificial intelligence does not possess emotion in its existential sense; instead, it reproduces patterns of emotional behaviour in a computationally artificial manner. Moreover, AI has affected the way in which human beings experience their emotions. Digital interactions have become an integral part of everyday life, transforming the ways we express and exchange emotions. Research indicates that intensive use of AI in communication may lead to emotional blunting or a loss of affective sensitivity as a result of interactions with nonhuman interfaces (Derks et al., 2008). Conversely, AI enhances self-awareness of emotion through applications for mood analysis or digital psychological assistance, including systems that monitor indicators of stress, anxiety, or depression via vocal, affective, and behavioural data (McStay, 2018).

In this context, the world has witnessed numerous activities and initiatives that encourage engagement with the realm of digital technology and artificial intelligence,

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

particularly in industry, agriculture, medicine, the economy, and notably in the field of communication, which has further facilitated professional life. Its role has not been limited to this but has also extended to an important aspect of public life, namely, research and education, alongside entertainment. In this article, from a theoretical perspective and through a narrative review, we examine the impact of artificial intelligence on public life and technological progress, particularly along specific trajectories since its inception, and its positive effects on human advancement in the field of communication. We draw on diverse studies and research from the well-known Google Scholar platform for document-based investigations of different viewpoints from various universities and international centers. Through this review, we aim to illustrate the relationship between human emotions, which are expressed through human communication, and artificial intelligence, as a reciprocal interaction between human affect and artificial logic. Artificial intelligence reshapes our perception of emotions, yet it also reflects the limits of technology in the face of the depth of human experience. The future holds vast possibilities, but it requires an ongoing dialogue on how we can preserve our humanity in an era where emotions become digital through reciprocal influence between machines and humans.

1. How Human Emotions Change

Human emotions constitute a fundamental component of an individual's psychological and social life, playing a crucial role in guiding behaviour, making decisions, and engaging in social interaction. However, emotions are

neither fixed nor static; instead, they are a dynamic phenomenon influenced by biological, cognitive, social, and cultural factors. Understanding how emotions change over time or across different situations represents a central focus in contemporary psychology and has therefore become a major preoccupation for scholars seeking to uncover their secrets so that the machine may be able to simulate it and arrive at explanations for disturbances or complexes in the process of understanding the other, as well as for the genuine expression of need whose essence the machine can comprehend. The biological basis for emotional change is considered essential for understanding the mechanism, as emotions are closely linked to the central nervous system, particularly the amygdala and the prefrontal cortex. Studies indicate that hormonal changes, neural activity, and chemical interactions in the brain play key roles in regulating the intensity and quality of emotions (LeDoux, 2015). For example, elevated levels of dopamine are associated with feelings of happiness and motivation, whereas cortisol is linked to stress and anxiety. The functional dimension of the nervous system, represented by the cognitive–functional system, also plays a significant role in the variation of emotions from one period to another or from one situation to another, as the cognitive perspective holds that emotional change results from the individual's interpretation of events and situations.

The appraisal model (appraraisal theory), proposed by Lazarus (1991), affirms that emotions arise from an individual's evaluation of an event rather than from the event itself. Accordingly, cognitive reappraisal can transform negative emotions into more positive emotions by modifying the way a person perceives a situation. The social

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

and cultural factors that have the most significant influence on the formation of attitudes and emotions in individuals have a profound impact on how emotions are expressed and regulated. In collectivist cultures, such as many Asian and Arab societies, individuals are expected to regulate their emotions to maintain social harmony, whereas in individualist cultures, such as Western societies, the free expression of emotions is encouraged (Matsumoto & Hwang, 2012). Rapid social change and modern technologies, such as the spread of social media, have also reshaped patterns of emotional expression among younger generations.

As we have noted, emotions vary according to life stage, and they mature just like other aspects of personality do. Emotions undergo continuous transformations across the stages of development. Children express their feelings innately and directly, whereas adolescents and adults learn to regulate their emotions in accordance with social norms and the situations they experience on the basis of previous experiences, acquired cognitive schemas, and established cognitive structures. Recent research suggests that older adults exhibit greater emotional stability and a greater capacity to manage emotions than younger adults do (Carstensen et al., 2011).

Today, technology plays a significant role in influencing emotions and altering moods. Technological advancements have brought about significant shifts in the experience of human emotions. Interaction through digital media has altered the nature of emotional relationships, providing individuals with new opportunities for self-expression, yet it has also increased feelings of isolation and social anxiety

(Turkle, 2017). Artificial intelligence has further contributed to the creation of new emotional experiences, such as attachment to robots or intelligent systems, which raises philosophical and psychological questions about the nature of human affect in the digital age. The change in human emotions is thus a complex, multidimensional phenomenon in which biological, cognitive, social, and cultural factors intersect. Understanding this dynamic helps develop better approaches to managing emotions and improving the quality of psychological and social life in a constantly changing world.

2. Human Knowledge Production Based on Artificial Intelligence (AI)

By adopting a holistic perspective on the use of artificial intelligence as a highly complex phenomenon, the orientations that have contributed to its most recent applications have emerged from continuous research into the possibility of simulating latent human capacities such as perception, interaction, relationship-building, affective communication, influencing situations, changing attitudes, and other forms of emotional engagement. All of this occurs through tools capable of substituting for rational functions that have long been regarded as exclusively human. Societies' concern with adopting clear policies for the development of artificial intelligence in the service of different spheres of life represents the adoption of a developmental model that emulates human capability. This tendency can be traced back to the figure of Frankenstein's creature, conceived as a robotic model that imitates the human form. These and other attempts fall within the efforts

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

that accompany the evolution of what are known as industrial revolutions and their various social applications.

In a chronological sequence, the present authors consider the emergence of artificial intelligence to be part of the Fourth Industrial Revolution, in which digital technologies are undergoing rapid development and in which profound interactions take place between human beings and a wide range of tools and multimedia. This new reality compels individuals to adopt precise and disciplined behaviours to deal effectively with a landscape inundated by complex information that may at times be contradictory or incomplete. It has therefore become essential to acquire multiple communication skills, whether through human language or by using tools made available by artificial intelligence. The discussion thus does not revolve solely around the importance of social interaction in human life but also around the facilitation of communicative exchanges in all their dimensions and whether this affects individuals' emotions in their selection of services.

The development of artificial intelligence cannot be separated from the figure of Alan Turing, to whom its origins are attributed through his famous article "Computing Machinery and Intelligence", in which he discussed the possibility that a machine might display a level of intelligence approximating human intelligence. Other scholars maintain that the emergence of artificial intelligence dates back to the contributions of McCarthy, Minsky, and Shannon in 1956, when they proposed the creation of automatic computers, neural networks, and computer programs and linked creativity as a fundamental element of human thinking (Barrera, 2012; Sossa, 2019).

Within this chronological trajectory, artificial intelligence, in its initial phase of growth, was characterised by the invention of LISP, the early, well-known programming language, and relied on the development of neural information networks, ADALINE and Perceptron, as solutions to specific problems in computer science. However, this same period witnessed stagnation because of governments' caution in allocating resources for the improvement of AI tools solely within public administrations (Livina, 2021). At the beginning of the 1990s, private institutional investments restored prominence to the revival of artificial intelligence, aiming to serve their economic and commercial interests, which in turn influenced the public's interest and emotions, particularly in terms of its technological applications (Pardinas, 2019). This qualitative leap in the field of investment enhanced its capacity to carry out operations that had previously been the exclusive domain of human beings, such as promoting technological progress to support interaction between humans (with changing emotions) and machines (as serving programmes). Applications such as Siri from Apple, Alexa from Amazon, and Bixby from Samsung have become integrated into this evolutionary trajectory, with the aim of improving daily tasks in homes, educational institutions, workplaces, leisure spaces, and scientific research, thereby serving human beings.

3. Artificial Intelligence as a Tool to Serve Human Beings

Despite the strength and diversity of definitions in scientific research, both theoretical and applied, that specialise in the subject and describe artificial intelligence as a process of intellectual production and a means of serving

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

human beings, digital technologies and the use of the devices derived from them represent a cultural transformation that cannot be resisted. It has become increasingly impossible to ignore the advances and expanding applications of artificial intelligence in various domains of human life, including the home, work, education, politics, administration, and emotional relationships. These fields have been permeated by AI applications, which aim to benefit from their services by meeting specific human needs. As a result, human beings can only understand or communicate through an affective exchange that serves their needs. From a theoretical perspective, artificial intelligence is closely linked to human initiatives aimed at integrating technology into the transformation of the surrounding environment (Clúa, 2020).

This involves concrete, practical efforts to increase human labour, regardless of its nature, to increase efficiency and effectiveness in performing workers' daily tasks, particularly computational tasks and operations previously assigned to the human element (Cabanelas, 2019). Artificial intelligence may thus be defined as an integral component of the computational sciences, aimed at simulating human behaviour and emotions to the greatest extent possible, by enhancing cognitive capacities to address complex tasks that require the use of logic, reasoning, and the exercise of different forms of intelligence. The benefit, therefore, lies in the fact that AI provides individuals and institutions with high-quality, complex operations that help overcome problems within human-designed programs, allowing the machine to execute tasks within a graduated and rapid logical framework. The importance of speed and precision

lies in reducing the likelihood of error in the absence of human intervention. Moreover, one of the commonly used classifications of AI proposes the existence of two types: low-capacity AI and high-capacity AI. The first refers to programmed machines and intelligent systems that simulate rational human behaviour and can, to some extent, perform automated operations in less complex ways (Porcelli, 2021). The second type, by contrast, may be regarded as AI applications that are stronger than before in terms of the following:

It surpasses the cognitive functions inherent in human intelligence when dealing with highly complex tasks that involve specialised fields such as medicine, surgery, automatic control in modern aviation, and the simulation of multiple scenarios. Intelligent systems that possess the capacity to interact with human beings, such as robots or computers capable of simulating human actions without any tangible difference in achieving the intended goals, perform tasks that align with what the individual wants and find comfort when making a request. Given that emotions change in every historical period, these forms of AI adapt to the information they gather through the available network to arrive at what is needed. This category includes technological models that can think and perceive their surroundings in much the same way that human beings do within their particular conditions. With the possibility of developing artificial intelligence that operates like human cognition (Avendaño et al., 2021), the fields of AI application begin with the processing of natural language communication between human beings. This use refers to the capacity to carry out translations and interactions between languages through human–computer interaction

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

interfaces, which, to some extent, facilitate the handling of large quantities of information in multiple languages. These researchers also highlight other domains of application, such as robotics, intelligent systems, learning and education, and facial and voice recognition. Marketing is also one of the fields into which AI has been integrated, yielding striking and remarkable results, focusing on what the public desires, whether for commercial enterprises or entrepreneurs with a certain level of specialisation in these technologies. This is highly feasible insofar as AI tools have "the capacity to learn and predict based on databases, which facilitates the design of intelligent techniques for automating the customer experience" (Martínez & Medina, 2020).

In view of the development of work on AI applications, researchers in this field have divided them into two main groups: those concerned with perception and those concerned with cognitive perception. In the first group, the author identifies specific systems related to voice and image recognition. Voice-activated applications, such as Siri and Alexa, are considered examples of the application of perception as a facilitating mechanism, whether for searching for information needed to reach a specific destination or for organising and playing music according to the user's preferences (Serrahima, 2022). Additionally, a set of applications classified within the domain of cognitive perception has begun to demonstrate its importance in the social context. This group represents part of the impact of AI on communicative processes, as there are tools that work to enhance dialogic interaction between humans and machines. Significant progress has been made in the ability of specific devices and software to understand or interpret language,

enabling improvements in specific tasks, most notably scientific work. Nevertheless, doubts persist regarding the feasibility of using linguistic analysis tools that can understand or predict individuals' mood states and effectively exploit this information.

4. Research Methodology

This study is descriptive in nature, relies on the collection of recent documents and studies from the field of artificial intelligence, and follows a documentary design. This approach is consistent with the application of an interpretative method, which involves the careful and comprehensive selection and analysis of documents, including books, research studies, and articles related to the topic, from both narrative and review perspectives. On the basis of this design, a systematic search technique was employed to identify and select information through scientific publication search engines, with Google Scholar being the primary source. This platform was chosen because of its wealth of recent research and publications. The search was guided by analytical indicators derived from the topic under consideration, namely, "artificial intelligence" and "the impact of artificial intelligence on communication." From this standpoint, and in the first stage, using only this thematic and temporal criterion, the results presented in

Soumission : **13/04/2025** **Acceptation** : **09/06/2025** **Publication** : **25/08/2025**

Table 1 were obtained.

Database	**Documents**	**Approximate search results from 2018 to 2024**
Google Scholar	Artificial intelligence and communication processes; artificial intelligence and human emotions	654
Google Scholar	The present and anticipated future of artificial intelligence (AI), its impact on the social structure	543

Through the collection of the available body of studies and scientific documents from the aforementioned source, which constitutes the study population according to the research categories in the databases, the accessible material was filtered according to specific scientific criteria as follows: documents published from 2018--2024 were selected; studies of different natures (quantitative, qualitative, or mixed) were included; thereafter, those fully accessible through the aforementioned databases were included; and finally, studies that align with the aim and objective of our research were selected. The inclusion and exclusion criteria mentioned above contributed to obtaining a purposive sample of documents while excluding works that did not meet the minimum requirements or the specific objective of the study. The results obtained were as follows:

On the Google Scholar platform, regarding topics related to artificial intelligence and communication processes, as

well as those linked to artificial intelligence and human emotions, we identified a targeted documentary sample of twelve (12) documents on the basis of the screening criteria. For topics related to the present and anticipated future of artificial intelligence and its impact on the social structure, in line with this research, we obtained a sample of eleven (11) documents, yielding a total of twenty-three (23) documents in terms of abstracts and conclusions on the Google Scholar platform. We examined this corpus of documents through a thorough study and comparison to arrive at a comprehensive conclusion.

Research Results and Discussion

A research review contributes to identifying knowledge gaps in previous studies, which helps the researcher justify the importance of their new study and direct their efforts towards valuable additions. It also provides a theoretical framework that supports the research methodology and reduces the repetition of previous errors by analysing the results and methods used in earlier research. In the academic context, it enhances the credibility of the study by demonstrating the researcher's familiarity with their field, and it assists in formulating precise research questions and hypotheses supported by evidence. The specificities of the topic and the methodological procedures and techniques adopted in the research are viewed as a quantitative and qualitative review process that targets the subject itself. Accordingly, the results section was organised into two distinct parts. The first refers to the set of categories that emerge as a result of documentary interpretation, while the identification and interpretation of certain specific elements characterise the second. The documents and authors were

Soumission : **13/04/2025** **Acceptation** : **09/06/2025** **Publication** : **25/08/2025**

deliberately selected with due consideration for the article's objectives. Nonetheless, separation between sections is merely a methodological procedure and is not related to the manner in which the original information was determined.

In the context of this research, it may be appropriate to adopt a distinctive approach or method for examining the relationships that may arise between artificial intelligence and individuals' social communication. It is well known that all current fields of AI application form part of broader development in this domain, as they primarily aim at the social adaptation of individuals and at what suits them and serves their emotions. Consequently, they are often treated in isolation for exploratory purposes rather than in an entirely realistic manner. One of the fields in which the presence of AI and its applications has been most noticeably observed is communicative processes, whether in the public or private sphere. At present, communication is considered one of the areas most affected by the rapid progress of AI, where increasingly enthusiastic intentions and significant commercial investments have been strengthened. Many technology companies have accelerated their expansion by integrating virtual assistants or mechanisms such as chatbots, which are essential to dialogic interaction between the information system and users. "According to a survey conducted by Spiceworks, approximately half of organisations and associations in the United States with more than five hundred employees will have incorporated chatbots or virtual assistants by 2019" (Lucas, 2019).

Despite their limited capacity to emulate human thinking, machines cannot genuinely reflect on their own existence and limitations through algorithms that may at times hinder

or restrict communication. This phenomenon occurs because machines, as Penida (2017) noted, operate through algorithms that enable them to process and solve only specific problems. Over a given period, they may encounter challenges in translating and responding to specific dialogic interactions with human beings. The difficulty lies in the fact that human communication extends beyond simple logic, as it encompasses psychological and emotional components that no machine can replicate. Humans possess the capacity to respond to uncertainty and to employ creativity in reaction to circumstances or to the demands of their interlocutors at a particular moment in the interaction.

On this basis, it is necessary to continue exerting efforts to achieve more effective interaction between AI and algorithmic functions, particularly in terms of the capacity of machines to perform cognitive tasks. Nevertheless, considerable progress has been made concerning individuals' ability to exchange words with technologically based applications. Whether as tools embedded in digital devices or as part of advances in mobile telephony, "interactions are becoming more user friendly, owing to the presence of software and programming languages that are easy for people to use in their daily lives" (Penida, 2017).

Regarding the issue of ambiguity in interaction with artificial intelligence, the capacity to interpret messages on the basis of the interlocutors involved and their intentions is considered a core feature of interpersonal communication processes. Human beings may be able to discern intentions or meanings in the messages of others; interpretation thus appears to be a mechanism for dismantling and reconstructing what is said, as well as the reasons underlying that utterance and the intentions attached to it.

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

Machines, however, cannot adopt this kind of interpretative procedure, given their design, which is directed toward operations on the basis of causal relations, that is, sending, receiving, or feedback (Valdiviso, 2019).

Nevertheless, the dimension of ambiguity in human communication constitutes a significant obstacle to more substantial advances in communicative processes between individuals and machines. Individuals frequently refer to situations, conditions, or events using vague or even varied terms that are understood only by those who share the same culture or experience. This creates an obstacle to the use of communicative, or so-called dialogic, applications, as the machine currently lacks the capacity to analyse the speaker's intentions, which are shaped by the individual's cognitive structure, prior experiences, emotions, and lived reality. It is instead limited to responding to the words or terms used without recognising the person's feelings, orientations, or lived situation.

Rendering instructions that the machine does not understand is more complex than redirecting a given request from managers within an organisation. Workers possess the capacity to assimilate incomprehensible messages, whether by inquiring about the elements that perplex them or by interpreting the messages on the basis of the mood states or intentions they observe. Consequently, the lack of clarity of a particular word or sentence may affect the effectiveness of an AI application when it interacts with its users. Contemporary debate likewise indicates that large models can generate convincing texts but do not "understand" meaning in the way humans do; ambiguous or obscure expressions can therefore lead to misleading or inconsistent

outputs, with linguistic ambiguity impinging on issues of reliability and effectiveness in AI applications (Bender, 2021).

Devices created via artificial intelligence are regarded as a complete revolution in the media field, which is considered a mechanism for communication between human beings, given that algorithms influence all aspects of information, from research and content production to its distribution and consumption (Sanahuja, 2021). In addition to the exchange and transmission of information, the media strives to diversify and develop the channels through which they convey their messages. Within the media sector, AI applications have emerged as a positive trend, although they face some resistance or obstacles due to the high costs associated with them in some instances. In this context, media organisations have promoted the establishment of alliances or collaborations that enable more media outlets to access advances in the field of artificial intelligence. The aim is to capitalise on the potential available in this emerging sector of digital technologies, thereby opening new avenues for disseminating and producing content (Cook et al., 2021). Artificial intelligence has revolutionised the role of most professionals in the contemporary context, regardless of their fields of performance. It is likely that, in a domain characterised by intensive use of digital technologies, a series of adjustments is being implemented in the media to meet the target audience's need for up-to-date information, to enhance digital competitiveness among professionals, and to strengthen the mechanisms activated in the process of automating media production.

Among the artificial intelligence tools used in communication, which in turn support the relationship

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

between AI and communication systems or devices, including business models, online education systems, and initiatives in digital marketing and entertainment, this is a common trend that enhances technology or automates many processes that were previously carried out either in person or through direct interaction between individuals. The components required for interactive dynamics via AI represent the essential features that have been developed in the various projects or systems proposed to date. Chatbot programs are considered tools that are frequently used in the fields of artificial intelligence and communication. The implementation of this strategy, under the label of virtual assistants, has strengthened interaction between organisations and users or clients. "A chatbot is defined as an online programme that convincingly simulates human behaviour in the context of a conversation, processing texts in natural language and interacting to generate intelligent and relevant responses" (Sánchez et al., 2020). Chatbots of a relatively simple nature are capable of simulating human dialogue, whether through oral or written interaction. As Sánchez noted, there are advanced programs capable of maintaining a degree of fluency in conversation via physical robots or holograms in the context of customer service or preset responses in specific online training courses. These tools also refer to computer programs that use AI to interact with users and perform specific tasks. The communicative capacities of virtual assistants include answering questions, scheduling meetings, sending e-mails, and other communication-related functions (Ramírez & Valle, 2022).

With respect to this topic, Ramírez and Valle (2022) emphasise the importance of virtual assistants within the

category of chatbots, as they are utilised in customer service processes within large companies. According to these authors, "the virtual assistant may be a conversational agent developed using artificial intelligence, particularly natural language processing, through which it interacts with users to answer their queries/questions," which demonstrates the relationship between this tool and its applications and the functions it can perform in developing communication via AI. Nevertheless, the emergence of virtual assistants has had a considerable effect on new modes of communication, as well as on corporate entities, organisations, and individuals who interact with and through them. It is necessary to achieve a better allocation of resources and skills to enhance AI capacities in this field, particularly in terms of efficiency in responding more spontaneously and rapidly to requests that may arise in human interactions with these devices or technologies. Finally, it is essential to emphasise the growing importance of AI applications in the media field, which has led to a profound transformation in the roles of journalists and other professionals in this sector. It is necessary, for example, to consider that the automation of processes in the reception, processing, and distribution of news may reveal shortcomings due to the limitations imposed by AI in this respect, particularly in relation to interpreting human behaviour, which at times leads to distortions in the interpretation of events and of those responsible for them (Calvo, 2020).

In the context of communication, artificial intelligence has increasing complexity. It generates a range of ideas for discussion, given that this has been one of the domains in which its progress has been concentrated since the period when Turing formulated his earliest reflections and

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

inventions. Contemporary society is immersed in the upheavals of an era that is difficult for individuals who lack digital skills to comprehend. Information, online messages, and social media are all synchronised with the language of AI. Nevertheless, despite the advancement and widespread presence of technological applications in individuals' daily lives, machines still lack specific basic human skills in interpersonal interaction. No application has yet succeeded in displaying a sensitivity comparable to that which individuals can demonstrate in their interactions with others, nor does there appear to be any digital device capable of conveying the tenderness and affection that human beings can show in the course of their social lives. There is, without a doubt, a significant impact of AI on communicative processes. However, the authors observe an increasing use of AI in communication, which raises the question of how academics in these fields view the improvement of chatbots, virtual assistants, and other digital devices whose primary function is communication.

Specific interpretative matrices summarise the discourse of the authors who were examined and interpreted, through which the impact of AI on communication becomes apparent. According to some authors, foremost among them Cong (2023), who adopts a communicative research perspective, technology has brought about a significant transformation in the practices of media professionals. He focuses on how digital technology has altered journalistic narrative mechanisms through interactivity and communication, for example, virtual reality and multimedia, and how it has particularly affected family relationships. Hohenstein et al. (2023) identify specific concrete effects in

the relationships between AI and communication, noting that the use of algorithmic response devices contributes to an increase in interpersonal interactions, while warning in their study about the risks that may ensue. Some scholars, including Linden (2017), describe specific data, such as "smart replies" and "generative AI", as having an impact on social language. In another study, Hancock et al. (2020) argued that the adverse effects of expanding or intensifying AI applications, as well as the difficulties associated with this expansion or intensification in its negative uses, are significant. The authors focus on the components of communication conducted via AI, emphasising its interactive nature and its psychological and social repercussions. The relationship between AI and communication should be viewed as an ongoing revolution that will lead to a profound transformation in human interactions and, consequently, in the relationship between individuals and technology. Emerging concepts include AI-mediated communication and computer-mediated communication.

Lucas (2019) concludes, for his part, that the artificial management of communication and predictive intelligence constitute two of the discursive theses on which he focuses. He argues that among the most prominent changes resulting from the application of artificial intelligence in communicative processes are the transformations it brings to language. This leads us to affirm that AI, through reliance on and use of it in fields of communication and interaction among members of the same family without resorting to face-to-face encounters, affects the development of language as a means of communication, expression, and relationship-

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

building, which reveals the effects of AI in the field of communication.

The authors, regardless of their field of study, demonstrate variability and the emergence of new terminology in the relationships between individuals and machines, which highlights the need for caution within the family. It is clear that, despite the notable progress in processes of human socialisation and the efforts made at the formal and informal levels through artificial intelligence, the transformation of interactions mediated by this technology into nonhuman interactions remains a possibility that undermines linguistic and communicative formations and pays no heed to human emotions, despite its advances and effectiveness in promoting development in all spheres of life. Ballester (2023) considers the field of communication to be among those most profoundly impacted by the advent, proliferation, and applications of AI. Among the most influential interventions are platforms such as ChatGPT, Perplexity, Grok, and others, all of which are directly linked to the issue of communication. The first of these is more widely used among school pupils, university students, and professionals.

Schwab (2016) argues that the Fourth Industrial Revolution (including artificial intelligence and digital–physical–biological integration technologies) is changing the nature of work, institutions, and society and that its effects are felt in many areas, especially the digitalisation of work and the massive use of data. He discusses industrial revolutions as the main drivers of social change in contemporary society. The central proposition is the concept of "data science", which, for him, leads to notions such as the

Internet of Things, nanotechnology, biotechnology, and humanoid robotics (Schwab, 2016). This research perspective incorporates the notion that scientific progress depends on the effectiveness of industrial revolutions, which in turn seek the most efficient financial resources. We therefore find that exploitation by major corporations is the driving force behind the erosion of effective social communication within the same society and among family members. Consequently, the impact increases as these discoveries multiply, and efforts are made to assign them a role in the human experience, alongside the serious pursuit of replacing human emotions with machine emotions, in line with the current outlook on discovery and technological development in artificial intelligence (AI).

When the domains affected by AI in its interaction with communication and human emotions are examined, its multiplicity and diversity clearly become apparent. One of the distinguishing features of the spread of technology lies in its integration into human socialisation processes through the various applications associated with it. Several authors have emphasised the communicative character of AI as the most crucial element. In contrast, others offer different perspectives on the need to evaluate other areas, such as personal relationships, privacy risks, and the importance of data management.

From another perspective, Park's (2022) study highlights the clear impact of artificial intelligence on audience emotions, particularly in relation to the effect of emotional disclosure by chatbots on user satisfaction and usage intentions. In an experimental study, he raised the question of how a chatbot's disclosure of "feel" or emotional content influences users' satisfaction, their intention to reuse the

Soumission : **13/04/2025** **Acceptation : 09/06/2025** **Publication** : **25/08/2025**

service, and their sense of emotional support. The study concluded that emotional disclosure increases satisfaction and the intention to reuse automated counselling services (Park et al., 2022). In another study, Shin and colleagues (2023), examining robots/chatbots as a source of emotional support (reviews and empirical studies), drew on a review and fieldwork that showed that some users receive emotional support from chatbots (for example, in situations of sadness or depression), with differences in effectiveness depending on the design of the bot (tone, persona, identification, etc.). The study highlighted the potential benefits of this technology while cautioning against the limitations of replacing human beings.

Accordingly, Eisberg and colleagues (2023) demonstrated how AI-generated content (deepfakes/face generators) alters audience perception and emotion. Experimental studies have shown that viewers respond emotionally to AI-generated scenes; however, there is a specific attenuation or modification of emotional impact for some expressions. For example, AI-generated smiles may reduce emotional impact compared with real-world smiles. This raises questions about the authenticity of emotions disseminated through automated means, as Eisberg and colleagues noted in their study. In another study, Requenko and colleagues (2020) reported that understanding the new reality requires fundamental support in networking, digital content, and artificial intelligence. Their perspective tends towards adopting apocalyptic orientations, grounded in the dominance and hegemony of AI and its influence on social communication. They further indicate that the importance accorded to AI applications leads to the assumption that

their impact will extend beyond mere communication and become something necessary and ever-present for individuals today, in the same way as computers or transportation systems, which, so to speak, affects the future of society. Mancina and colleagues (2019) argued that the prospects of AI in this context cannot be presented in isolation from the world of technological globalisation and its diverse biological entities.

The core concept adopted by these authors in their treatment of the prospects of AI and communication is that of "convergence". Given that the contemporary world is characterised by the convergence of a set of trends grounded in the intensive and widespread use of information and communication technologies, there is no viable alternative for resisting this advance without risking backwardness or social isolation. A prime example of this is artificial intelligence, including robots, chatbots, such as ChatGPT, and other related phenomena, all of which pose obstacles to social communication, particularly within families and extended family communities. These authors also regard intelligent systems, mind–machine integration, and innovative environments as the terms that help conceptualise the emerging universe as a set of possibilities made available through the application of AI. Ortiz and Lima (2019) contend that digital transformation entails a reconfiguration of the symbolic–discursive universe through which the contemporary world is approached, interpreted, and experienced. In that document, terms such as interactivity, multimedia, hypermedia, and kaleidoscopic systems are introduced. Within this narrative or discursive current, it becomes logical to employ specific terms that encompass concepts such as digital environments,

Soumission : 13/04/2025 **Acceptation** : 09/06/2025 **Publication** : 25/08/2025

convergence, interactive integration, and multimedia culture.

Conclusion

Through this presentation, the authors indicate that the more artificial intelligence and the digital world advance and intensify interaction among individuals, the more they make life easier and smoother in terms of services; however, they also lead society to grow more distant in terms of emotional closeness and the genuine characteristics of the family, which is regarded as the primary structure of the nation. The issue of perceptions is often linked to the academic background and interests of the authors who present them, and it is clear that there is an intention to continue developing AI capacities to facilitate communicative processes in an increasingly interconnected and digitally dependent global society. In this context, most authors consider it necessary to address and strengthen this issue. In addition to communication, contemporary conceptions of AI focus on fields such as business, politics, and governmental systems. The field of marketing is expected to remain within the plans of developers of innovative communication applications. In parallel, public authorities will seek to capitalise on the essential nature of these innovative applications in the domain of communication. At the same time, AI devices are often oriented towards serving corporate interests and fulfilling their economic purposes. Both institutions and the management of political power may thus constitute

powerful allies in the advance of AI, as has been the case with the progress achieved in communication systems to date.

In conclusion, this study aimed to interpret the reciprocal relationship between AI and individuals' changing emotions, and within this framework, a complex relationship was observed that may be said to remain in a process of development, in line with the different conceptions reported in the specialised literature in this research field and with what was collected from the Google Scholar database. Chatbots, virtual assistants, and ChatGPT, Perplexity, and Gemini, with their multiple versions, along with other AI systems that are too numerous to list, are merely examples of the emerging reality of artificial intelligence, as these models respond to the requirements of the communications industry in society as a whole, given that technology has penetrated all sectors. This does not stop here, however, as current research and numerous attempts are moving towards enabling the machine to simulate human intelligence and to perform emotional tasks similar to those involved in creating affective human relationships among members of society, which may lead to the risk of a possible extinction of human emotions. There is no doubt that opponents of this situation exist, particularly those who adopt sociological and humanistic orientations in their approach to society. However, companies operating in this field are less concerned with the human condition than with achieving financial success and global dominance. However, processes have gradually developed that have succeeded in convincing even the most sceptical of the advantages offered by the various AI applications in this domain.

Soumission : 13/04/2025 **Acceptation** : 09/06/2025 **Publication** : 25/08/2025

This leads us to construct an adequate conception of the current situation in light of the aforementioned studies. In the context of the interaction between social communication and artificial intelligence, the increasingly prominent role played by AI in the spheres of social and human production has become evident, as seen in what occurs on social media platforms, which are regarded as passageways to the original community. The management of communities and the quasipermanent and comprehensive capture of their attention constitute primary objectives for those who seek to create digital environments that align with the digital demands and skills developed by individuals in this field without considering the serious consequences for society. Fields such as education, medicine, transport systems, entertainment and, of course, communications occupy a prominent position in future expectations of strengthening the sociodigital interconnection between AI and human communication, which is subject to mutual feelings and emotions. It is therefore necessary to consider the programming structure of these tools and the relationships that will emerge in the future through the forms of social assistance provided by the machine in the context of human technological and scientific progress. The diversity of tendencies that hinder analysis constitutes a fundamental constraint on predicting the advancement of AI and its impact in the field of communication.

A systematic analysis of this phenomenon becomes complex because of the involvement of multiple actors. An interpretative and hermeneutic approach represents a viable option for study, even though it remains limited to certain aspects of AI, such as its role in the media. Nonetheless, the

importance of this study lies in its interdisciplinary nature and in its aim of imparting a human dimension to a topic that has long been addressed within a purely technical and informational framework. The purpose is to explore how AI has influenced and continues to influence what is primarily a social context. In a scenario where technology permeates the family structure almost comprehensively, there remains a need to continue reflecting on the challenges and stakes that this reality poses for individual development from a sociohuman perspective. Human emotions are regarded as powerful divine inspirations that cannot be fully attained, given the complexity of the psychological processes of the human subject, which continually adapt to situations and are governed by environmental constraints imposed by the communicative process. This study makes an integral contribution to the substantial body of work produced by numerous researchers, serving to improve the quality of future studies and reveal previously unexamined dimensions. It thereby encourages new research that focuses on local or global solutions, enhancing the quality of scientific inquiry through systematic review.

Researchers' recommendations

In light of these findings, future scientific and academic research may be directed towards the following:

- Longitudinal studies examining the reciprocal influence between artificial intelligence and human communication are needed.
- More effective and authentic interactive models capable of mutual communication in the service of human beings and their diverse social and emotional inclinations should be developed.

Soumission : **13/04/2025** **Acceptation** : **09/06/2025** **Publication** : **25/08/2025**

- Ethical frameworks and governance mechanisms should be established to regulate this trajectory by involving all disciplines to organise rational and responsible uses that protect human and intellectual values.
- By integrating artificial intelligence into the different stages of education, individuals may adapt to it across processes of development and social formation and prepare young people and society as a whole for the digital age.
- In this respect, there is a need to address social issues that fall victim to digital hegemony, foremost professionals affected by occupational burnout resulting from dependence on machines.
- Developing automated monitoring programmes for communication platforms on the basis of reciprocal affective prompts between machines and human beings.

References

1. Avendaño, W., Mogrovejo, J., & González, J. (2021). University Students' Perceptions of Their Intelligence *Espacios, 41*(39), 198–211. https://www.revistaespacios.com/a20v41n39/a20v41n39p15.pdf
2. Barrera, L. (2012). Historical and philosophical foundations of artificial intelligence. *UCV-HACER: Journal of Research and Culture, 1*(1), 87–92. http://www.redalyc.org/articulo.oa?id=521752338014

3. Bender, E. M., Gebru, T., et al. (2021). On the dangers of stochastic parrots: Can language models be too large? *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency*
4. Cabanelas, J. (2019). Artificial intelligence: Dr Jekyll or Mr Hyde? *Markets and Business, 40*, 4–16. https://www.redalyc.org/articulo.oa?id=571860888002
5. Calvo, L., & Ufarte, M. (2020). Perceptions of university professors, students, innovation officers, and journalists on the use of artificial intelligence in journalism. *El Profesional de la Información*. https://doi.org/10.3145/epi.2020.ene.09
6. Carstensen, L. L., Turan, B., Scheibe, S., Ram, N., Ersner-Hershfield, H., Samanez-Larkin, G. R., ... Nesselroade, J. R. (2011). Emotional experience improves with age: Evidence based on over 10 years of experience sampling. *Psychology and Aging, 26*(1), 21–33. https://doi.org/10.1037/a0021285
7. Chin, H., et al. (2023). Potential of Chatbots for Emotional Support *Frontiers*.
8. Clúa de Yarza, P. (2020). *The future of employment: The challenges of automation, artificial intelligence, and robotics* (Undergraduate thesis). Universidad Pontificia Comillas. https://repositorio.comillas.edu/xmlui/bitstream/handle/11531/37122/TFG%20-%20Clua%20de%20Yarza%2C%20Paloma..pdf?sequence=1
9. Cong, J. (2023). The impact of digital technology on the storytelling of contemporary journalism. *Education, Science, Technology, Innovation and Life*. https://doi.org/10.23977/mediacr.2023.040503

Soumission : **13/04/2025** **Acceptation** : **09/06/2025** **Publication** : **25/08/2025**

10. Cook, C., García, E., Gyulnazaryan, H., Melano, J., Parusinski, J., & Sabadan, A. (2021). *Uses of artificial intelligence and machine learning in media of emerging markets*. IMS-Defending Journalism book series. https://recursos.elclip.org/clipoteca/reportes/AI_%26_ML_in_Emerging_Markets.pdf
11. Damasio, A. (2018). *The strange order of things: Life, feeling, and the making of cultures*. Pantheon Books.
12. Derks, D., Fischer, A. H., & Bos, A. E. R. (2008). The role of emotion in computer-mediated communication: A review. *Computers in Human Behavior, 24*(3), 766–785. https://doi.org/10.1016/j.chb.2007.04.004
13. Eiserbeck, A., et al. (2023). Deepfake Smiles Matter Less: The Psychological and Perceptual Consequences. *Scientific Reports, 13*.
14. Guerrero, F., & Ballester, C. (2023). The impact of generative artificial intelligence on the field of communication. *HTXT: Academic Journal on Digital Documentation and Interactive Communication, 26*, 1–3. https://www.raco.cat/index.php/Hipertext/article/download/416518/511209
15. Hancock, J., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication, 25*, 89–100. https://academic.oup.com/jcmc/article/25/1/89/5714020
16. Hohenstein, J., Kizilcec, R., DiFranzo, D., Aghajari, Z., & Mieczkowski, H. (2023). Artificial intelligence in communication has a significant impact on language

and social relationships. *Scientific Reports, 13*, 5487. https://doi.org/10.1038/s41598-023-30938-9
17. Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press.
18. LeDoux, J. E. (2015). *Anxious: Using the brain to understand and treat fear and anxiety*. Penguin Books.
19. Linden, C. (2017). Decades of automation in the newsroom. *Digital Journalism, 5*(2), 123–140. https://doi.org/10.1080/21670811.2016.1160791
20. Livina, M., & Coca, Y. (2021). *Development and challenges of artificial intelligence*. Cuban Education Publishing House. https://es.unesco.org/sites/default/files/l1_desarrollo_y_retos_de_la_ia.pdf
21. Lucas, M. (2019). Artificial intelligence and communication: A challenge beyond technology. *UNO, 33*, 25–30. https://www.revista-uno.com/33-revista-uno-tecnologias-exponenciales/
22. Martínez, A., & Medina, R. (2020). Technologies in artificial intelligence for marketing: A literature review. *Pro Sciences, 4*(30), 36–47. https://doi.org/10.29018/issn.2588-1000vol4iss30.2020pp36-47
23. Matsumoto, D., & Hwang, H. S. (2012). Culture and emotion: The integration of biological and cultural contributions. *Journal of Cross-Cultural Psychology, 43*(1), 91–118. https://doi.org/10.1177/0022022111420147
24. McStay, A. (2018). *Emotional AI: The rise of empathic media*. Sage Publications.
25. Ortiz, M., & Lema, Y. (2019). Public and service media on the web: A Spanish-Ecuadorian perspective on public communication service in digital convergence. In L.

Soumission : **13/04/2025** **Acceptation** : **09/06/2025** **Publication** : **25/08/2025**

Romero & D. Rivera (Eds.), *Communication in the digital scenario: Current issues, challenges and perspectives* (pp. 235–260). Pearson. https://dialnet.unirioja.es/descarga/libro/739219.pdf

26. Pardiñas, S. (2019, June). *Artificial intelligence: A study of its impact on society* [Undergraduate thesis, University of A Coruña]. https://ruc.udc.es/dspace/bitstream/handle/2183/28479/PardinasRemeseiro_Sofia_TFG_2020.pdf
27. Park, G., et al. (2022). Effect of AI chatbot emotional disclosure on user satisfaction and reuse intention for a chatbot counselling service. *Internet Interventions*.
28. Picard, R. W. (1997). *Affective computing*. MIT Press.
29. Pineda, M. (2017). Artificial intelligence and communication models. *Razón y Palabra, 21*(4_99), 332–346. http://revistas.comunicacionudlh.edu.ec/index.php/ryp
30. Porcelli, A. (2021). Artificial intelligence and robotics: Their social, ethical, and legal dilemmas. *Derecho Global. Estudios sobre Derecho y Justicia, 6*(16), 49–105. https://doi.org/10.32870/dgedj.v6i16.286
31. Ramires, P., & Valle, D. (2022). Virtual assistants based on artificial intelligence. *ReCIBE, 11*(2). http://recibe.cucei.udg.mx/index.php/ReCIBE/article/view/251/186
32. Recuenco, A., & Reyes, W. (2020). Artificial intelligence: Path to a new world framework. *Sciéndo, 23*(4), 299–308. https://doi.org/10.17268/sciendo.2020.036

33. Reeves, B., & Nass, C. (1996). *The media equation: How people treat computers, television, and new media like real people and places*. Cambridge University Press.
34. Sanahuja, R., & López, P. (2021). Journalistic applications of artificial intelligence: Conceptual map, professional functions, and development trends in the context of the global COVID-19 pandemic. *Razón y Palabra, 25*(112), 432–449. https://doi.org/10.26807/rp.v25i112.1827
35. Sánchez, E., Colomo, E., Ruiz, J., & Sánchez, J. (2020). *Educational technologies and didactic strategies*. UMA Editorial. https://riuma.uma.es/xmlui/handle/10630/20345
36. Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
37. Serrahima, A. (2022, March). *Advances and challenges of artificial intelligence* [Master's thesis, Universidad Pontificia Comillas]. https://repositorio.comillas.edu/xmlui/bitstream/handle/11531/57178/Avances%20y%20desafios%20de%20la%20inteligencia%20artificial%20-%20Serrahima%20de%20Bedoya%2C%20Alvaro.pdf
38. Sossa, J., & Peña, A. (2019, September). *State-of-the-art in artificial intelligence and data science*. Instituto Politécnico Nacional. https://www.ipn.mx/assets/files/coriyp/docs/inicio/red-ia-cd/ESTADO_DEL_ARTE_IAyCD.pdf
39. Valdiviezo, C., & Bonini, T. (2019). Intelligent automation in communication management. *Doxa.Comunicación, (29)*, 169–196. https://gc.scalahed.com/recursos/files/r161r/w25464w/Automatizacion%20inteligente.pdf