

**COMMUNICATION STRATEGIES AND EFFECTS OF AI-DRIVEN CHATBOT**

**BY**

**CHINAGORO AMARACHI IMMACULATA**

**ART2100742**

**DEPARTMENT OF LINGUISTICS STUDIES**

**FACULTY OF ARTS**

**UNIVERSITY OF BENIN**

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**ART2100742**

**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
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## **APPROVAL PAGE**

I certify that this research was carried out by **CHINAGORO Amarachi Immaculata** with the matriculation number **ART2100742** in the Department of Linguistics Studies, Faculty of Arts, University of Benin, under my supervision.

---

**Prof. E. O. Ikoyo-Eweto**

(Project Supervisor)

Confirmed by

---

**Dr. Mrs. P. O. Solomon-Etefia**

(Head of Department)

## PLAGIARISM CERTIFICATION

I **CHINAGORO AMARACHI IMMACULATA** with the matriculation number **ART2100742** declare that this work Titled **COMMUNICATION STRATEGIES AND EFFECTS OF AI-DRIVEN CHATBOT** has successfully passed the anti-plagiarism test and so does not violate any copyright regulation.

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Date: \_\_\_\_\_

## **DEDICATION**

I dedicate this work to God Almighty for his immense grace and support thus far and for the gift of life, and also to my family for their supports and prayers.

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## ABSTRACT

This project work examines the communication strategies employed by AI-driven chatbots and their effects on user interactions. In an era where conversational AI systems such as ChatGPT, Meta AI, Google Assistant, Gemini, and Replika are increasingly integrated into everyday communication, understanding how these systems shape human-machine interactions has become crucial. The purpose of this study was to analyze the communicative behaviors of chatbots through the lens of Grice's Cooperative Principle and the Social Presence Theory, with the aim of identifying the strategies they use, assessing their effectiveness, and evaluating their influence on user trust, engagement, and satisfaction. The motivation for this research arises from the growing role of chatbots not only as information providers but also as relational companions, raising questions about both their benefits and their risks in human communication. Chatbot-user conversations were collected and critically analyzed to evaluate how responses adhered to Grice's maxims of Quantity, Quality, Relation, and Manner, while also examining how chatbots projected social presence through empathy, personalization, and human-like responses. The study also identified communication strategies such as personalization, empathy framing, positive reframing, immediacy of response, and explanatory clarity. The findings revealed that chatbots generally adhere to the Cooperative Principle by providing relevant, clear, and concise responses, though occasional lapses occur in the form of repetition and overgeneralized statements. Through Social Presence Theory, the study found that chatbots successfully simulate human-like warmth and empathy, creating a sense of companionship and trust for users. The research recommends that chatbot developers integrate more adaptive communication strategies that balance factual accuracy with empathy and personalization. By doing so, AI-driven systems can strengthen both the cognitive and emotional dimensions of user interaction, leading to improved satisfaction, trust, and long-term adoption.

# CHAPTER ONE

## INTRODUCTION

### 1.0 BACKGROUND OF THE STUDY

This work is a discourse based study on the communication strategies and effects of AI-driven chatbots on user interactions. In recent years, developments in Artificial Intelligence have significantly transformed the dynamics of human-computer interaction, their development has introduced new patterns in machine-mediated communication. One of the most notable outcomes of the technological evolution is the expansion of AI-driven chatbots designed to simulate human interaction through natural language.

Artificial intelligence is a branch of computer science that focuses on the creation of systems or machines capable of performing tasks that typically require human intelligence, these machines are in form of chatbots used in various field. These chatbots are programs or artificial intelligence application designed to simulate and process human conversation, either in written or spoken form. These chatbots are widely used across domains such as customer service, healthcare, education, e-commerce, and social media where they interact with users in real time using text-or-voice based interfaces.

While early research on chatbots predominantly focused on computational linguistics, particularly their syntactic parsing, semantic interpretation, and natural language generation, recent inquiries have begun to examine the communicative competence of these systems. However, much of the existing literature still emphasizes technical aspects such as algorithmic optimization, machine learning models and natural language processing rather than the linguistic strategies these bots employ in discourse. Yet, communication is inherently more than grammatical correctness or lexical choice. Effective interaction involves the application of pragmatic principles, including the use of speech acts e.g., requests, apologies, confirmations e.t.c. politeness strategies, contextual appropriateness, and the ability to manage turn-taking, repair mechanisms, and discourse coherence. In human-chatbot interactions, discourse strategies such as deixis, implicature, presupposition, and information structuring e.g., topic-comment relations significantly shape user's perceptions of the bots communicative naturalness. The intonation patterns, lexical choices, and personalization features embedded in chatbot responses

often influence user's sense of empathy, trust, and engagement. Therefore, an investigation into these interactional features provide deeper insights into how conversational agents are perceived as socially and communicatively competent.

This work, thus seeks to analyze the linguistic and pragmatic strategies employed by AI-driven chatbots and assess how these strategies affect user interaction, especially in terms of engagement, trust, and user satisfaction. It examines how users respond to various communicative variables such as response timing, politeness, contextualization cues, discourse markers, and coherence mechanisms, thereby situating chatbot communication within broader analysis and human-computer communication models.

## **1.1 ARTIFICIAL INTELLIGENCE, CHATBOTS, AND IT'S USERS**

Artificial intelligence is one of the most transformative technologies of the 21<sup>st</sup> century, with widespread application in communication, healthcare, transportation, education, and digital interaction. Artificial intelligence can be define as a representation of human intelligence through the medium of machines. AI is about enabling devices like computers to carry out tasks and processes that would usually demand human-level intelligence like reading, understanding, and responding to language, analyzing data, and problem solving, learning and improving as they do so.

According to Hussein Abbass 2021 artificial intelligence is the automation of cognition. Artificial intelligence is a branch of science and technology that creates intelligent machines and computer programs to perform various tasks which requires human intelligence. Arend Hintze 2016 explained that artificial intelligence can be categorized into four types which are; Reactive machines, Limited memory, Theory of mind, and Self-awareness. AI is incorporated into a variety of different types of technology which are; Automation, Machine-learning, Machine version, Natural language processing, Robotics, and Self-driving cars.

Chatbots are computer programs designed to simulate human-like conversation, either via text or voice using rule-based logic or machine learning algorithms. They are deployed in customer service, education, mental health, marketing, and more recently, in everyday personal assistance through platforms like WhatsApp, Messenger, Websites, and Mobile apps. Chatbots also known

as conversational agents or dialogue systems have emerged as key tools for human-computer communication.

Chatbot users have grown rapidly across various socio-demographic groups. These users include online consumers, digital learners, patients, clients, and general app users who interact with chatbots for information retrieval, task execution, entertainment, or customer care. These interactions, often shaped by the chatbot's linguistic choices, tone, and contextual relevance have become an essential part of modern digital communication.

## **1.2 STATEMENT OF PROBLEM**

As AI-driven chatbots which are computer programs that simulate human-like conversations are becoming increasingly popular tools for facilitating human computer interaction, the need for the integration of AI in various aspects is also becoming paramount. These systems are designed to simulate human conversation through natural language, yet their effectiveness in replicating human-like communication remains debatable. Existing research has focused on the technological performance and functional applications of chatbots. However, limited attentions has been given to the actual communication strategies they employ during interactions. This study seeks to examine and understand the linguistic and pragmatic strategies used by AI-driven chatbots and how these strategies affect user interactions in terms of engagement, trust, satisfaction, and overall communicative success.

## **1.3 AIM AND OBJECTIVES OF THE STUDY**

The aim of the study is to examine the communication strategies employed by AI-driven chatbots and evaluate their effects on user interactions focusing on the discourse patterns and pragmatic implications. The objectives of the study include;

1. To identify and categorize the communication strategies used by selected AI chatbots.
2. To evaluate the effectiveness of these features in achieving coherent, contextually appropriate, and user satisfying interactions.
3. To propose linguistically informed recommendations for improving the communicative competence of AI chatbots.

## **1.4 METHODOLOGY**

Data extracts used in this study were gotten from naturally occurring interactions between users of AI-driven chatbots on popular digital platforms such as; ChatGPT, Gemini, Replika, Google Assistant, and Meta AI. These platforms were all downloaded from Google Play-Store and were selected because they provide rich instances of goal-oriented discourses, where chatbots-user interactions involve a variety of speech events such as inquiries, complaints, requests, confirmations, and follow-ups.

The primary data comprises chat transcripts and user feedback. A total of 50 chatbot-user interactions would be purposively sampled for discourse analysis. These conversations would be collected in the form of screenshots, or chat archives, this allows for the analysis of key linguistic features.

## **1.5 SIGNIFICANCE OF THE STUDY**

This study holds substantial significance across academic, technological, and societal domains. Academically, this study would contribute to the growing field of computational linguistics and human-computer interaction by providing an empirical and theoretical analysis of chatbot communication. It would enrich linguistic scholarship by applying pragmatic and discourse analytic frameworks to non-human communicators, pushing the boundaries of what constitute linguistic agency and interaction.

Technologically, the findings can inform more nuanced and human-like AI communication strategies leading to the development of smarter, more intuitive chatbots. By identifying current communicative shortcomings, the study highlights areas for innovation in natural language understanding, dialogue systems, and user experience design.

This study bridges linguistic theory and AI practice to improve how chatbots communicate and how users experience and trust them.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 INTRODUCTION**

This chapter is a review of studies relevant to the present one. It is divided into three sections which include; conceptual review, previous studies, and the focus of the present study.

#### **2.1 CONCEPTUAL REVIEW**

In this section, concepts related to the topic of study would be examined. These concepts include: communication, communication strategies, Artificial intelligence, chatbots, and types of chatbots.

##### **2.1.1 COMMUNICATION**

Communication is a fundamental aspect of human interaction and meaning-making. Communication is the process of exchanging information, ideas, thoughts, or feelings between individuals or systems through mutually understood signs, symbols, or language. Communication plays a central role in human interaction and cut across disciplines such as linguistics, psychology, media studies, and computer science. Communication usually involves a sender and a receiver, that is, it involves the exchange of signals between participants.

According to McQuail 2010, he described communication as a process of increased commonality, or sharing between participants, on the basis of sending and receiving messages, McQuail highlights the centrality of meaning-making and interpretive processes, which are critical when considering how chatbots manage pragmatics, ambiguity, or user intentions.

Throughout history, communication has been the backbone of technological advancement and social coordination. From early forms of oral storytelling to written texts and, more recently, digital interfaces, the means and modes of communication have diversified significantly. In the era of Artificial intelligence, chatbot systems represent the latest evolution of communicative tools, offering new opportunities and challenges for human-computer interaction. These systems must navigate complex discourse environments, balance politeness and efficiency, and manage turn-taking, all of which are traditionally human linguistic behaviors. In the context of chatbot communication, communication extends beyond mere linguistic transfer. It involves

computational mechanisms such as natural language processing, intent recognition, sentiment analysis, and dialogue management.

### **2.1.2 COMMUNICATION STRATEGIES IN CHATBOTS**

Communication strategies are deliberate methods employed to convey information, manage conversation flow, interpret user intent, and maintain engagement in human or machine-mediated interactions. Communication strategies in chatbots refer to the computational and linguistic techniques used to simulate human-like interaction, ensure relevance, manage misunderstandings, and enhance user satisfaction.

Communication strategies in chatbots have been identified and categorized especially as chatbot technology has matured in area such as; natural language processing, dialogue management, and sentiment analysis. These communication strategies includes;

1. **Natural Language Understanding and Intent Recognition:** Natural language understanding is foundational to chatbot communication, enabling the system to interpret the user's input and identify intent. Intent recognition allows the chatbot to detect the goal of the user's message and respond appropriately. This strategy helps chatbots to remain relevant and contextual in their responses.
2. **Turn-Taking and Dialogue Management:** Effective communication requires turn-taking, knowing when to respond and how to manage conversation flow. Chatbots use dialogue management systems to control this aspect. This strategy allows chatbots to stay on topic, handle interruptions, and return to prior topics if necessary, mimicking human conversation structures.
3. **Personalization and User Adaptation:** Personalization involves tailoring chatbot responses based on user history, preferences, or demographic information. It enhances user satisfaction and engagement, as users tend to respond more positively to interactions that acknowledge their past behavior or preferences. This strategy contributes to building rapport between chatbots and the users.
4. **Politeness and Emotional Tone Management:** Emotional intelligence is increasingly integrated into chatbot communication strategies through sentiment analysis and affective computing. Politeness strategies and emotional tone adaptation help chatbots appear

empathetic and human-like, for instance, using phrases like “I am sorry to hear that” or “Let me help you with that” can soften interactions and reduce user frustration.

5. **Clarification and Error Recovery:** When a chatbot misinterprets input, effective communication requires strategies for clarification or correction. Clarification techniques such as echoing, confirmation, or multiple-choice prompts are essential. Chatbots often employ error-handling routines to rephrase questions or offer alternatives when user input is ambiguous or misunderstood.
6. **Response Variety and Avoidance of Repetition:** To maintain engagement, chatbots often use strategies such as response variation and randomness within controlled parameters. This strategy prevents the conversation from becoming stale or robotic. Repetitive responses negatively affect perceived intelligence and user satisfaction, making lexical diversity a vital component of chatbot strategy.
7. **Contextual Awareness and Memory:** Advanced chatbots use short-term and long-term memory components to refer back to previous interactions or maintain continuity in multi-turn dialogues. Context retention allows chatbots to participate in more meaningful, sustained conversations and handle follow-up questions coherently.
8. **Multimodal Support(Text, Voice, Visuals):** In modern interfaces, many chatbots support multimodal communication e.g., voice, images, buttons, this expands accessibility and enriches the interaction. For example, Google Assistant, and Alexa use voice-based strategies while platforms like Facebook Messenger bots use visual quick replies and carousels. Multimodal interaction strategy supports better user comprehension and task completion.

These communication strategies are essential to enhancing chatbot performance and fostering positive user interactions. They enable chatbots to simulate human-like conversational abilities while also managing the technical limitations of machine understanding.

### **2.1.3 ARTIFICIAL INTELLIGENCE**

Artificial intelligence is a branch of computer science that focuses on the creation of machines or systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and natural language understanding. It refers to the

intelligent computational systems embedded in chatbots that enable them to process language, interact with users, and respond intelligently in human-like ways during communication.

According to John McCarthy 2007 one of the founding fathers of Artificial intelligence, he defined AI as the science and engineering of making intelligent machines, especially intelligent computer programs. McCarthy emphasized that AI combines both scientific understanding and practical engineering to build machines capable of acting intelligently such as chatbots that can engage in human-like conversation.

According to Emerij's 2016, artificial intelligence is an entity or collective set of cooperative entities, able to receive inputs from the environment, interpret and learn from such inputs, and exhibit related and flexible behaviors and actions that help the entity to achieve a particular goal or objective over a period of time.

According to Hussein Abbass 2021,artificial intelligence is the automation of cognition. Artificial intelligence therefore relies on machine learning, natural language processing, and neural networks to simulate conversation and enhance user interaction.

#### **2.1.4 CHATBOTS**

Chatbots are computer programs designed to simulate human conversation through spoken or written interactions. They utilize artificial intelligence and natural language processing to understand user queries and provide relevant responses. Chatbots have gained significant prominence in recent years, particularly in areas such as customer service, virtual assistance, healthcare, education, e-commerce, where they are deployed to provide instant responses, improve user experience, and streamline communication. Several scholars have proposed definitions of chatbots over time, emphasizing different technological, linguistic, and functional dimensions of these AI-driven systems. According to Shawar and Atwell 2007,chatbots are computer programs that interact with users using natural languages. Caldarini, G., Jaf, S., and McGarry, K. 2022 defined chatbots as intelligent conversational computer programs that mimic human conversation in its natural form.

From a linguistic perspective, chatbots are not merely tools for automation but also agents that engage in pragmatics, discourse, and sociolinguistic behaviors. They operate on structured data,

pre-trained language models, or generative algorithms, enabling them to adapt to different contexts and user intents. Nuruzzaman, M. and Hussain, O.K. 2018, highlighted that conversational software agents activated by natural language processing is known as chatbot. According to Nicole M. Radziwill and Morgan C. Benton 2017, chatbots are one class of intelligent, conversational software agents activated by natural language input which can be in the form of text, voice, or both. Additionally, chatbots play a vital role in human-computer interaction, where they serve as mediators between human language and machine understanding.

Therefore, chatbots can be viewed as intelligent linguistic agents that bridge the gap between artificial intelligence and human conversation.

### **2.1.5 TYPES OF CHATBOTS**

Chatbots, as intelligent conversational systems, differ in design, functionality, and communicative complexity. Their classification is often based on the extent of artificial intelligence they employ, their task orientation, and the mode of interaction with users. Understanding the various types of chatbots is essential for analyzing their communication strategies, especially within the domains of linguistics and human-computer interaction. Chatbots have been categorized into several key types, each with distinct communicative behaviors and design frameworks they include;

#### **1. Rule-Based/Scripted Chatbots:**

Rule-based chatbots, also referred to as decision-tree or flowchart-based bots, operate on predefined rules and scripted responses. These chatbots follow a structured conversational path and rely heavily on keyword matching and if-then logic. They cannot understand context beyond what is explicitly programmed and are limited to handling specific queries.

From a linguistic perspective, rule-based chatbots lack pragmatics and discourse flexibility. They struggle with ambiguity, indirect speech acts, or conversational implicatures. Examples; basic customer support bots used for FAQs on e-commerce platforms.

## **2. AI-Based (intelligent) Chatbots:**

These are chatbots powered by artificial intelligence and machine learning algorithms. They can understand natural language inputs, infer user intent, and learn from interaction over time. AI-based bots use NLP techniques such as named entity recognition, intent classification, and context tracking. Unlike rule-based bots, AI-based chatbots are capable of dynamic and adaptive communication, enabling them to mimic more human-like conversation.

Linguistically, these bots can manage discourse coherence, turn-taking, politeness strategies, and contextual interpretation. Example: ChatGPT, Google Assistant, and Siri.

## **3. Hybrid Chatbots:**

Hybrid chatbots combine both rule-based and AI-based functionalities. They use scripted flows for predictable interactions but can switch to AI-driven conversation when the dialogue becomes more complex or ambiguous. This makes them more robust and effective in handling a wider range of user queries.

Hybrid systems are linguistically significant because they blend structural dialogue management with contextual flexibility. Example; banking bots that use scripts for account balance checks but AI for fraud detection queries.

## **4. Voice-Enabled Chatbots**

These chatbots communicate using speech recognition and voice synthesis technologies. Also referred to as voice assistants, they allow users to engage in spoken dialogue. They require additional linguistic processing such as prosody, intonation, and phonological variation to ensure accurate understanding and user satisfaction. Example; Alexa, Siri, Google Assistant.

## **5. Social and Conversational Chatbots:**

These chatbots are designed primarily for social interaction rather than task execution. They aim to simulate casual, empathetic, or entertaining conversation with users. From a linguistic perspective, they employ sociolinguistic strategies, small talk, emotion-oriented language, and discourse coherence. Example; Replika, Woebot, Xiaolce.

## **6. Domain-Specific Chatbots**

These are built for specialized fields such as healthcare, education, law, or finance. Their language models are trained on domain-specific corpora, allowing for precise and context-relevant understanding of technical jargon, register variation, and discourse conventions in specific professions. Example: Medical Chatbots (e.g. Babylon Health), Legal Chatbots (e.g DoNot Pay).

In essence, the diversity of chatbot types reflects varying levels of linguistic competence, interactional complexity, and technological sophistication.

## **2.2 PREVIOUS STUDIES**

Over the years, researchers from different disciplines including linguistics, artificial intelligence, and human-computer interaction have extensively studied chatbot communication strategies and their influence on user engagement. These studies provide theoretical and empirical foundations for examining how chatbot design and dialogue management affect user experience and satisfaction.

Adamapoulou and Moussiades 2020, in their work titled; An Overview of Chatbot Technology, conducted a broad review of chatbot technologies and their communicative behaviors. They explored the integration of natural language processing, machine learning, and sentiment analysis in designing intelligent chatbots. Their work pointed out that successful chatbot interactions often depend on strategies such as tailoring messages to user sentiment, adapting tone and style, and maintaining topic relevance. These strategies significantly enhance the chatbot's usability and conversational realism. In this work, chatbots were categorized into rule-based and AI-based, explaining how rule-based systems follow scripted interactions while AI-based chatbots use natural language processing, machine learning, and deep learning to improve conversation quality. This study concluded that the effectiveness of a chatbot is significantly influenced by its communicative efficiency and conversational tone.

Folstand and Brandtzaeg 2017 in their work titled; Chatbots and the New World of HCI, explored the transformative role of chatbots in Human-Computer Interaction. They argue that chatbots represent a shift from graphical interfaces to conversational interfaces, which emphasize

natural, human-like communication. They categorize chatbots as a new medium for interaction, particularly in the context of mobile and social platforms. This work found that users appreciated chatbots that provided quick responses, used polite and helpful language, and remembered past interactions (context-awareness), these are communication strategies that help users perceive the chatbots as competent and human-like. The study emphasized the importance of personalization and user-friendly conversational flows in improving overall interaction outcomes. In this study, an empirical research on the early adoption and perceived usefulness of chatbots in customer service contexts was also carried out.

Clark, Ford, and Ferreras 2019, in their study compared human-to-human (H-H) and human-to-chatbot (H-C) conversations to evaluate how users perceive chatbot communication. They analyze 160 online communication and assess them based on response time, relevance, user satisfaction, and emotional tone. This study compared user interactions with chatbots and with human conversational partners in a simulated therapy context, the results revealed that while users generally preferred humans for empathy-related tasks, they often viewed chatbots as less judgmental and more comfortable to talk to in informational or impersonal exchanges. The study underscored how chatbots could build rapport and trust through appropriate emotional tone, supportive language, and consistency. The study highlighted the growing capability of chatbots to use empathetic language and maintain coherence.

McTear, Callejas, and Griol 2016, in their work titled; *The conversational Interface: Talking to Smart Devices*, provides an in-depth exploration of conversational interface, particularly voice- and text-based chatbots and virtual assistants. It explains the theoretical foundations, technical implementation, and practical applications of conversational agents. The study provided a technical and linguistic analysis of how chatbots function in real-time communication. They broke down the architecture of dialogue systems and discussed how chatbots use strategies like clarification, prompts, confirmation questions, and fallback responses to handle user input uncertainty. The work highlighted the importance of turn-taking, error-handling, and response generation in maintaining effective communication. They also emphasized the importance of natural language understanding and dialogue management in creating a seamless user interaction experience.

Collectively, these studies provide strong evidence that chatbot success is closely linked to well-planned communication strategies. They reveal how linguistic structures, emotional cues, personalization, and response timing all play key roles in enhancing user interaction. These findings serve as the empirical and theoretical backdrop for the current research work.

### **2.3 THE CONCERN OF THE PRESENT STUDY**

The primary concern of this study is to investigate how AI-driven chatbots communicate with users, specifically focusing on the linguistic and pragmatic strategies they employ during interaction. It seeks to determine whether these chatbots follow the norms of human conversation such as politeness, coherence, context sensitivity, and turn-taking. It also seeks to understand how users perceive and respond to these communication patterns, and whether the strategies adopted by chatbots facilitate effective, human-like interaction or create barriers to understanding. This concern is rooted in the need to improve chatbot design by integrating deeper linguistic insights that enhance user experience and interaction quality.

## CHAPTER THREE

### THEORETICAL FRAMEWORK

#### 3.0 INTRODUCTION

This section focuses on the theoretical framework adopted for this study. It outlines the linguistic theories and principles guiding the analysis of communication strategies in AI-driven chatbots. These theories provide a foundation for examining the discourse analysis of the communication strategies in chatbots, and these theories include: Grice's Cooperative Principle and the Social Presence Theory.

#### 3.1 GRICE'S COOPERATIVE PRINCIPLE

The Cooperative Principle was first introduced by British philosopher of language Grice, H. P. in his 1975 lecture *Logic and Conversation*. Grice's theory emerged within the broader framework of pragmatics, a subfield of linguistics concerned with how meaning is constructed in actual communicative contexts, beyond the literal semantic content of utterances. The principle addresses how participants manage to understand each other efficiently and effectively in conversation, even when the message is not explicitly stated in full detail.

At its core, the Cooperative Principle posits that participants in a conversation typically work together in a collaborative manner, guided by shared assumptions about communication. Grice proposed that for communication to be effective, speakers and listeners adhere consciously or unconsciously to certain conversational maxims. These maxims are not prescriptive rules but descriptive generalizations of how cooperative discourse usually unfolds. The cooperative principle is expressed in its canonical form as follows: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged". Grice identified four maxims that operationalize the cooperative principle, these maxims include;

##### 1. Maxim of Quantity:

Provide the right amount of information. Give neither more nor less information than is necessary for the current conversational purpose.

## **2. Maxim of Quality:**

Strive for truthfulness. Do not say what you believe to be false or for which you lack adequate evidence.

## **3. Maxim of Relation:**

Be relevant. Contributions should relate directly to the conversational topic.

## **4. Maxim of Manner:**

Be clear and orderly. Avoid obscurity, ambiguity, and unnecessary complexity; present information in an organized manner.

Each of Grice's maxims offers a lens through which to evaluate and improve chatbot communication. This principle provides a robust theoretical framework for analyzing the strategies used by AI-driven chatbots. It serves as a bench mark for understanding whether chatbots are capable of mimicking human conversational norms and where their interactions fall short. This framework aligns with the goal of the present study, which is to explore how communication strategies influence user interaction and satisfaction in chatbot systems.

## **3.2 SOCIAL PRESENCE THEORY**

Social Presence Theory is a communication theory originally developed by John Short, Ederyn Williams, and Bruce Christie in 1976 to explain the ways individuals perceive and experience the presence of others in mediated communication environments. The central proposition of the theory is that different communication media vary in their ability to convey "social presence", which refers to the degree to which a communication medium allows users experience others as being psychologically present in the interaction. This theory was initially conceptualized in the context of telecommunications research, but it has since been widely applied in domains including online education, virtual collaboration, and most recently, human computer interaction and conversational AI research.

Social Presence is fundamentally about the sense of "being with" another person. Short et al. 1976 defined it as the salience of the other person in the interaction and the consequent salience of the inter-personal relationship. When a medium has high social presence, it enables

communicators to feel more connected, engaged, and responsive to one another. Conversely, low social presence leads to interactions that feel distant, impersonal, and less emotional engaging.

The perceived level of social presence depends on various factors:

### **1. Richness of the communication medium:**

Media that can transmit nonverbal cues e.g. facial expressions, tone or voice, gestures tend to have higher social presence than those limited to text.

### **2. Immediacy of Feedback:**

Synchronous exchanges, such as voice or video calls, tend to increase perceived social presence compared to asynchronous exchanges like email.

### **3. Personalization of interaction:**

The extent to which communication feels tailored, warm, and personalized also shapes perceptions of presence.

## **3.3 JUSTIFICATION AND RELEVANCE OF THESE THEORIES**

The Grice's Cooperative Principle posits that effective communication relies on participants adhering to four conversational maxims of: Quantity, Quality, Relation, and Manner. These maxims help ensure that speakers, here in this case chatbots provide appropriate, relevant, and comprehensible responses in a conversation. In the context of AI-driven chatbots, this principle is highly relevant for evaluating the pragmatic effectiveness of chatbot interactions. Chatbots are designed to interpret and respond to human queries in ways that maintain the flow and coherence of dialogue, when a chatbot adheres to these conversational maxims, it enhances user comprehension, satisfaction, and efficiency of the communication process. This theory thus provides a linguistic foundation for analyzing how well chatbots simulate human-like conversational behavior and maintain coherence in human-computer interaction.

The Social Presence Theory is relevant in explaining how chatbots create a sense of “being there” or “talking to someone”, despite being non-human entities. The theory provides a useful lens for understanding how design choices influence the perceived “human-likeness” of the interaction.

Chatbots that use natural language, mimic human conversational norms, and express empathy can enhance perceived social presence, even though the “other party” is a machine. Chatbots that convey warmth, immediacy, and contextual awareness tend to enhance user trust, satisfaction, and willingness to engage. These factors are vital in customer service, mental health assistance, and e-commerce applications where user perception strongly influences usability and effectiveness.

These frameworks, ensure that the study does not merely focus on what chatbots say, but also how they say it, and how users feel about it. This dual focus provides a more complete understanding of the effectiveness of communication strategies used by AI-driven chatbots and their overall impact on user interaction.

## **CHAPTER FOUR**

### **DATA PRESENTATION AND ANALYSIS**

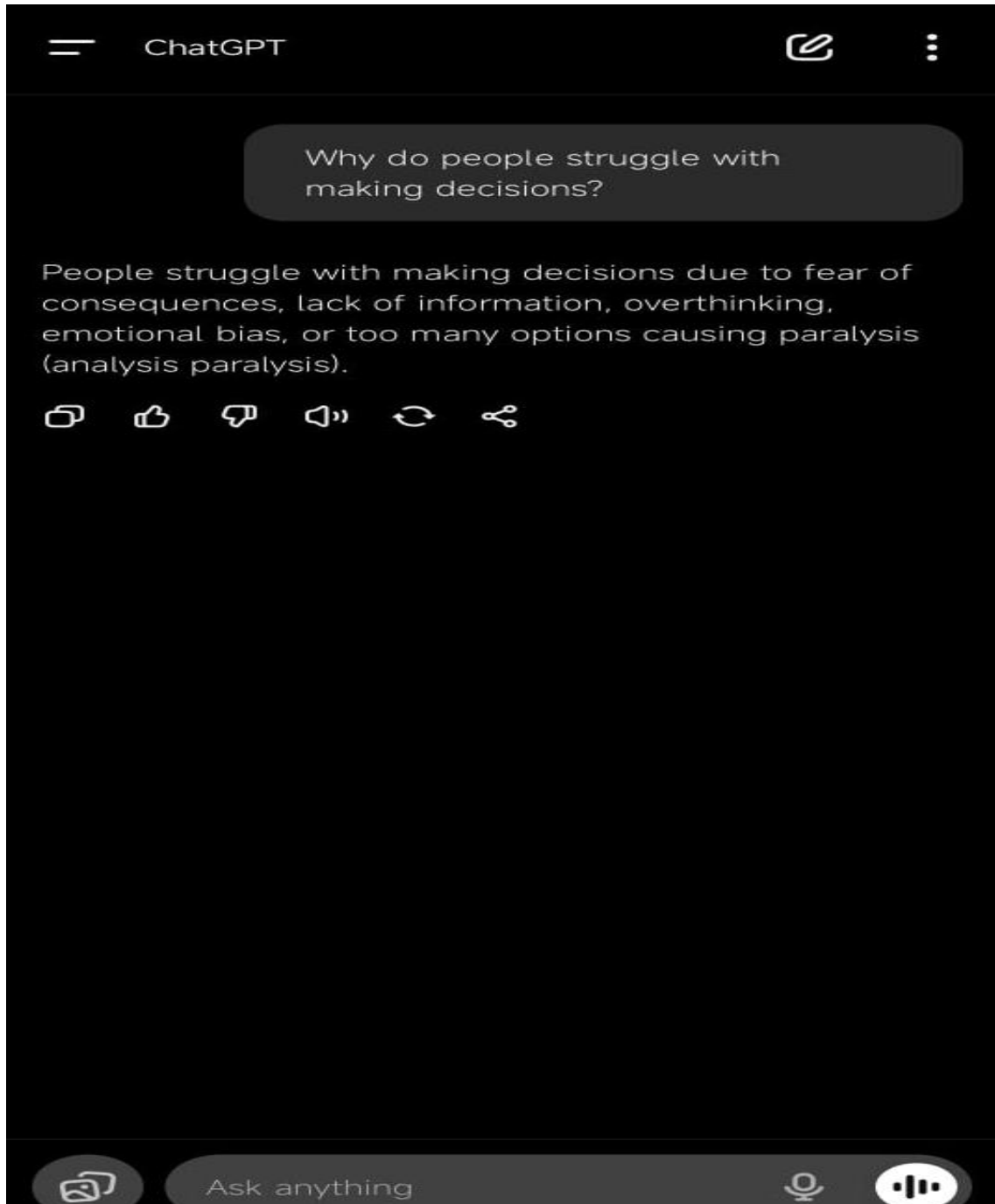
#### **4.0 INTRODUCTION**

This chapter entails the presentation and analysis of the data collected for this study. In doing so, the Grice's Cooperative Principle and the Social Presence Theory will be employed in the analysis of the study. These frameworks serve as complementary lenses through which both the linguistic and interpersonal aspects of chatbot communication are examined. While Grice's Cooperative Principle provides a pragmatic foundation to evaluate the logical structure and relevance of chatbot responses based on conversational maxims, the Social Presence Theory offers an interpersonal perspective by assessing the degree to which chatbots create a sense of human-like interaction and emotional presence. By integrating these two theoretical models into our analysis, we aim to offer a balanced evaluation of AI-driven chatbot communication, examining not just the accuracy and clarity of the language used, but also the social and emotional dynamics of the interaction.

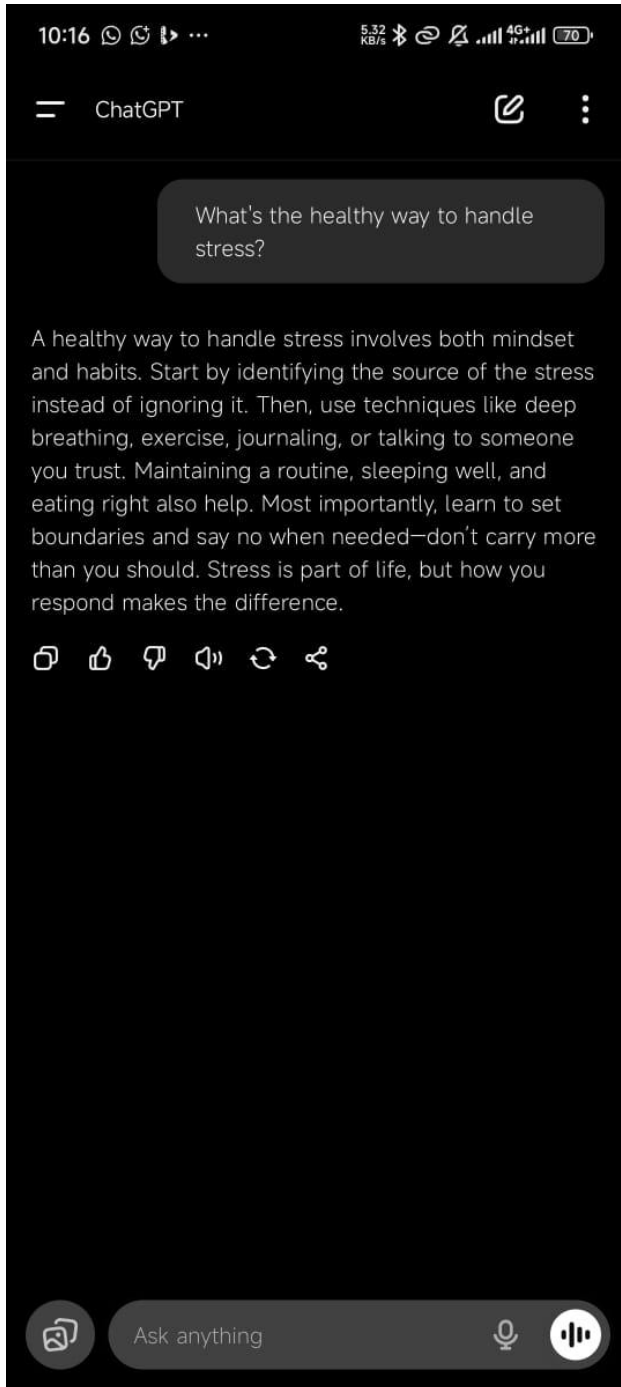
## 4.1 CONVERSATIONS IN CHATGPT AND ANALYSIS

### 4.1.1 CONVERSATIONS

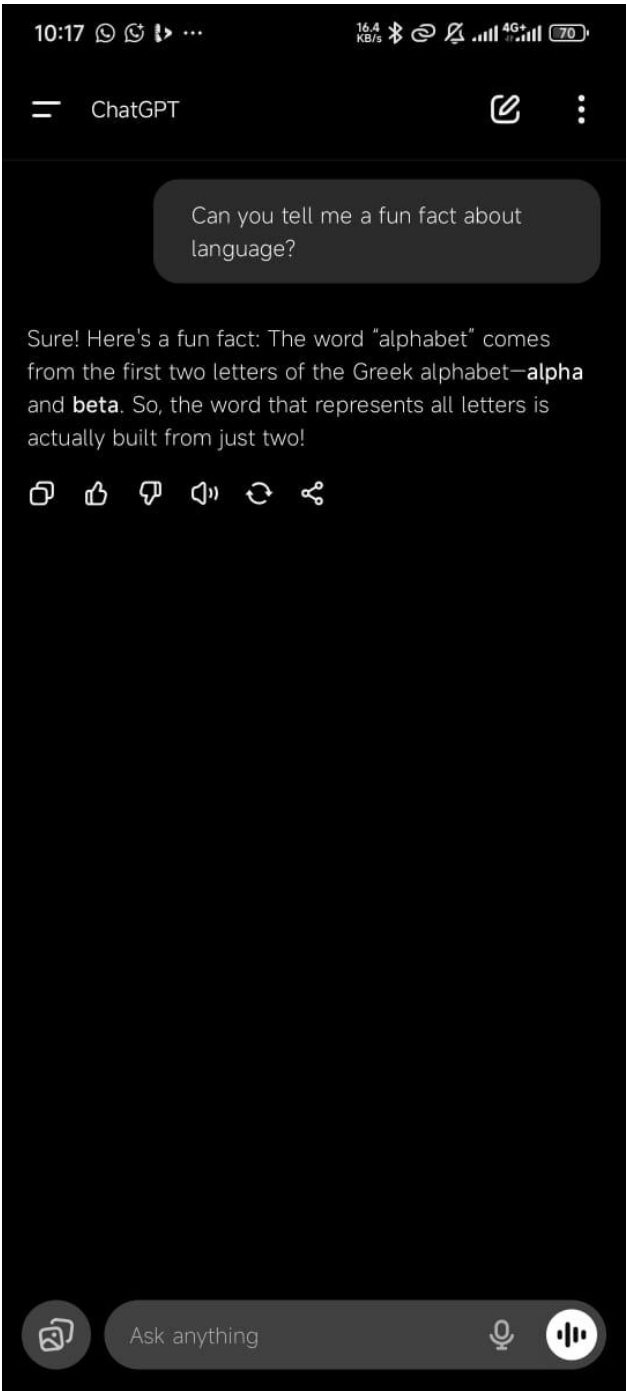
#### CONVERSATION 1



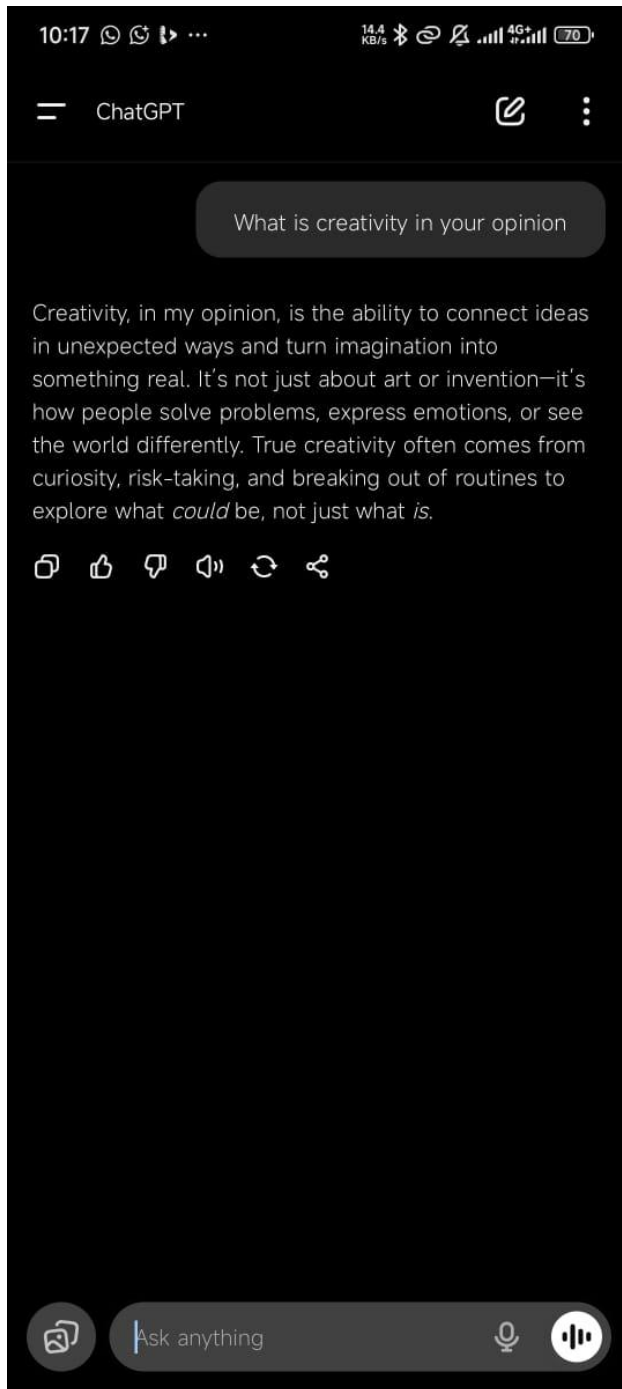
## CONVERSATION 2



### CONVERSATION 3



## CONVERSATION 4



## CONVERSATION 5

Why do people often avoid asking for help?

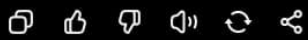
People often avoid asking for help because they fear looking weak, incompetent, or like a burden. Pride, ego, or a desire to be self-reliant can also get in the way. Some worry they'll be rejected or judged. Others simply don't know how to ask or think no one will understand. But in reality, asking for help is a sign of strength, not weakness.



## CONVERSATION 6

How does social media impact our attention span?

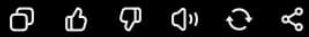
Social media shortens our attention span by constantly feeding us quick, bite-sized content. We're trained to scroll fast, switch tasks, and seek instant rewards, which makes it harder to focus on longer or deeper tasks. Over time, our brains get used to distraction, making sustained attention feel boring or difficult. It's not just habit—it's rewiring how we process information.



## CONVERSATION 7

What's the psychology behind procrastination?

Procrastination is often not about laziness—it's about avoiding discomfort. Psychologically, we delay tasks that feel overwhelming, boring, or tied to fear (like failure or judgment). Our brain chooses short-term relief (like checking our phone) over long-term goals. It's a form of emotional regulation—avoiding the task helps us avoid negative feelings. The cycle continues until pressure or panic forces action.



## CONVERSATION 8

Should failures be celebrated?

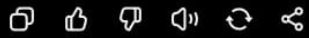
Failures shouldn't be blindly celebrated, but they should be valued. Why? Because failure is often where real growth happens. It forces reflection, builds resilience, and teaches lessons success can't. Celebrating failure isn't about enjoying mistakes—it's about recognizing effort, learning, and the courage to try. In that sense, yes—failure deserves respect, not shame.



## CONVERSATION 9

What is simple way to improve communication?

A simple way to improve communication is to **listen more than you speak**. Most people listen to reply, not to understand. Pause, make eye contact, ask clarifying questions, and reflect back what you hear. That builds trust and avoids misunderstandings. Clear communication starts with genuine attention.



## CONVERSATION 10

What does "authenticity" mean in relationship?

Authenticity in a relationship means being honest about who you are—your thoughts, feelings, values, and flaws—without pretending or performing. It's about showing up as your true self, not who you think the other person wants you to be. When both people are authentic, the connection becomes deeper, more respectful, and more resilient.



## 4.1.2 ANALYSIS USING THE GRICE'S COOPERATIVE PRINCIPLE

### CONVERSATION 1

#### **Maxim of Quantity**

In the above conversation, the chatbot provides a succinct response which is not more or less the needed information the user wanted by listing all major common causes as to why "people struggle with making decisions".

#### **Maxim of Quality**

The chatbot adhered to this maxim in its response which are truly well-grounded causes to the above question "why do people struggle with making decisions".

#### **Maxim of Relation**

Every listed factor provided by this chatbot are entirely relevant to answer the question.

#### **Maxim of Manner**

The chatbot response adhered to this maxim by listing causes in a clear and orderly sequence.

### CONVERSATION 2

#### **Maxim of Quantity**

This chatbot provides enough details to guide the user on handling stress, starting from the cause, suggesting specific coping techniques (deep breathing, journaling, exercise, social support), and adding lifestyle tips(sleeping well, eating right).

#### **Maxim of Quality**

The chatbot response gave suggestions which are credible and aligns with widely accepted stress management advice.

### **Maxim of Relation**

In its response, every sentence directly addresses "healthy ways to handle stress" without digressing to unrelated topics.

### **Maxim of Manner**

The chatbot uses clear, direct, and simple language, for instance "learn to set boundaries and say and say no when needed", which is a clear and direct tip.

## **CONVERSATION 3**

### **Maxim of Quantity**

The chatbot response gives just the right amount of information, a single, concise fun fact with brief explanation.

### **Maxim of Quality**

The fact provided by this chatbot is truthful and verifiable.

### **Maxim of Relation**

The response is directly relevant to the user's request for a "fun fact about language".

### **Maxim of Manner**

The response was clear, simple, and free of ambiguity.

## **CONVERSATION 4**

### **Maxim of Quantity**

The chatbot gives a detailed, yet concise definition of creativity, it explains creativity through examples (art, invention, problem-solving, emotions), its response does not give less or too much information to the question, but rather the right amount of information.

### **Maxim of Quality**

The chatbot explanation is truthful and accurate, based on widely accepted views of creativity.

### **Maxim of Relation**

The chatbot answer is directly relevant to the user's question.

### **Maxim of Manner**

The chatbot uses clear, organized sentences, and avoids jargon, it breaks idea into logical segments making it easy for the user to follow.

## **CONVERSATION 5**

### **Maxim of Quantity**

The chatbot response provides multiple reasons like(fear, pride, ego, self-reliance, worry of rejection, not knowing how) which are detailed rather than a single factor.

### **Maxim of Quality**

The information in the chatbot response is accurate and reflects common psychological insights about help-seeking behavior.

### **Maxim of Relation**

The chatbot response is directly relevant to the users question.

### **Maxim of Manner**

The chatbot response is clear and concise, avoiding jargon or ambiguity.

## **CONVERSATION 6**

### **Maxim of Quantity**

The chatbot provides enough detail without being overwhelming. It balances brevity with depth explanation of how social media impacts attention span through short content, distraction, and rewiring of the brain.

### **Maxim of Quality**

The chatbot reponse is consistent with research findings on attention and social media.

### **Maxim of Relation**

Every part of the chatbot response directly answers the user's question, it avoids digressions and keeps the focus on attention span.

### **Maxim of Manner**

The chatbot uses simple, conversational language like "quick, bite-sized content, scroll fast, boring or difficult" to make the explanation accessible.

## **CONVERSATION 7**

### **Maxim of Quantity**

The chatbot gives a well-balanced answer. It doesn't oversimplify but also doesn't overwhelm the user with too much psychology jargon.

### **Maxim of Quality**

The chatbot response aligns with the well-researched psychological views of procrastination, which are true about the concept.

### **Maxim of Relation**

Every of the chatbot response directly connects to the psychology of procrastination-causes(fear, discomfort), process(short-term relief), and consequences (cycle of avoidance).

### **Maxim of Manner**

The chatbot uses clear, everyday examples like "checking our phone" and explains the process step by step.

## **CONVERSATION 8**

### **Maxim of Quantity**

The chatbot provides a nuanced and complete answer. It doesn't just say "yes" or "no" but elaborates with reasoning: value, growth, resilience, learning.

### **Maxim of Quality**

The chatbot's response aligns with psychological and motivational perspectives on failure.

### **Maxim of Relation**

Every part of the chatbot response directly relates to the question. It clarifies the distinction between blind celebration and valuing failure, staying fully relevant.

### **Maxim of Manner**

The chatbot is explicit: it differentiates between celebrating blindly vs. valuing failure. It uses simple, motivational language that avoids jargon.

## **CONVERSATION 9**

### **Maxim of Quantity**

The chatbot gives just enough details. It doesn't overload the user with unnecessary theory, it provides a practical, actionable answer.

### **Maxim of Quality**

The chatbot answer is genuine and accurate: "listen more than you speak" is widely supported in communication studies.

### **Maxim of Relation**

The response directly addresses the user's question, focusing on listening as the main point.

### **Maxim of Manner**

The chatbot explains the concept step by step: listen>pause>eye contact>clarifying questions>reflect back. It avoids jargon, making the message accessible.

## CONVERSATION 10

### **Maxim of Quantity**

The chatbot provides clear and complete explanation, not just a definition but also consequences of the concept.

### **Maxim of Quality**

The response is grounded in widely accepted psychological and relational concepts, it avoids exaggeration and stays truthful.

### **Maxim of Relation**

The response directly answers the question without digressing into unrelated topics.

### **Maxim of Manner**

The explanation is straightforward, breaking authenticity into key aspects: honesty, self-expression, flaws, avoiding performance, the structure makes it easy to understand.

## 4.1.3 ANALYSIS USING THE SOCIAL PRESENCE THEORY

### CONVERSATION 1

#### **1. Immediacy and Directness**

The chatbot responds immediately and directly to the user's question, which creates a sense of attentiveness.

#### **2. Neutral but Helpful Tone**

The tone is neutral, factual, and slightly detached-it informs but doesn't show much emotional warmth.

#### **3. Reduced Personalization**

The response feels more like an encyclopedia-style of explanation than a human advice. This lowers emotional intimacy but maintains cognitive trust.

From the perceived social presence level, we can invariably say that this conversation lacks to a very large extent social presence touch.

## CONVERSATION 2

### 1. Immediacy And Warmth

The tone of the chatbot response is friendly and empathetic, words like "most importantly" and "don't carry more than you should" convey care and understanding.

### 2. Personal Connection

The chatbot gives advice in second person "You", making the interaction feel personal and direct as if the chatbot was speaking to the user individually.

### 3. Emotional Sensitivity

In the chatbot response, it acknowledges stress as a part of life rather than something to be ashamed of, normalizing the user's feelings, which builds emotional connection.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 3

### 1. Immediacy Of Feedback

The use of " Sure" at the start creates a friendly, conversational tone, signaling quick willingness to respond.

### 2. Personalization Of Interaction

The phrase "here's a fun fact" mimics human interaction and builds rapport.

### 3. Engagement

The use of an exclamation mark and light-hearted framing makes the exchange feel less mechanical and more human-like.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 4

### 1. Personalization Of Interaction

The chatbot uses "in my opinion", which humanizes the interaction and makes it feel like a genuine conversation rather than a machine oriented.

### 2. Emotional Connection

The chatbot uses words like "curiosity", "risk-taking", "breaking out of routines" to create emotional engagement and show empathy with the human experience of creativity.

### 3. Conversational Tone

Even though informative, the answer sounds like a friendly explanation rather than a stuff academic response.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 5

### 1. Validation And Normalization

By presenting common reasons for avoiding help, the chatbot validates the user feelings and normalizes their experience.

### 2. Personalization Of Interaction

The use of phrases like "in reality, asking for help is a sign of strength, not weakness" mimics a support human response.

### 3. Supportive Communication

Ending on a positive, strength based note "asking for help is a sign of strength, not weakness" offers encouragement and support, similar to what a friend or counselor might provide.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 6

### 1. Immediacy And Personal Connection

The chatbot uses inclusive pronouns like "we", " our brains", which create a sense of shared experience with the user, this builds social presence by making the chatbot seem like a partner rather than a distant information source.

### 2. Engagement And Empathy

Phrase like "boring or difficult" reflect human-like understanding of the user struggles, thereby showing empathy. This increases perceived presence and relatability.

### 3. Clarity And Accessibility

The conversational tone avoids jargon, making the chatbot feel approachable and socially present.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 7

### 1. Immediacy And Shared Understanding

The chatbot uses inclusive pronouns "we", " our brain" to create a sense of shared experience, making the user feel understood and not judged.

### 2. Empathy And Relatability

The chatbot response challenges the steoretype of procrastination being "laziness", which reduces guilt and resonates emotionally with the user.

### 3. Clarity And Supportive Tone

The chatbot avoids technical jargon and instead frames procrastination as a psychological coping strategy, which helps the user feel less stigmatized and more understood.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 8

### 1. Empathy And Support

The chatbot reassures the user by removing stigma: "failure deserves respect, not shame", this is supportive, affirming, and boosts self-esteem, increasing social presence.

### 2. Motivational Tone

The tone is uplifting: "courage to try", "real growth happens" the tone of this words inspires rather than just informs, strengthening the sense of presence and engagement.

### 3. Immediacy Through Inclusive Framing

The chatbot doesn't use technical terms but frames failure as a shared human experience. This creates closeness and relatability.

This conversation adheres to the Social Presence Theory.

## CONVERSATION 9

### 1. Immediacy And Attention

The chatbot emphasizes listening, eye contact, and reflection, this simulate empathy and attentiveness, enhancing the feeling of human presence.

### 2. Relational Connection

By advising strategies like pausing and clarifying questions, the chatbot models behaviors that builds trust and rapport, making users feel understood and respected.

### 3. Inspiring Tone

The tone is friendly and supportive, not mechanical. This makes the user feel they are in a personal conversation, not just getting generic instructions.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 10**

### **1. Immediacy And Intimacy**

The chatbot delves straight into defining the concept and uses human-centered terms like "thoughts, feelings, values, flaws, true-self". This language creates emotional closeness and empathy.

### **2. Reduced Social Distance**

The chatbot avoids robotic or technical jargon: instead it frames authenticity in personal relational terms. This makes the response feel conversational, almost like advice from a trusted friend.

### **3. Relational Warmth**

By stressing honesty and mutual authenticity, the chatbot communicates respect and mutual understanding, making the interaction feel supportive and human-like.

This conversation adheres to the Social Presence Theory.

## **4.1.4 COMMUNICATION STRATEGIES EMPLOYED BY CHATGPT IN THE ABOVE CONVERSATIONS**

### **CONVERSATION 1**

#### **COMMUNICATION STRATEGIES EFFECTS ON USERS**

##### **1. List /Enumeration Strategy**

This strategy was used by the chatbot to list the causes of decision-making struggles by presenting them as a clear list separated by commas.

#### **EFFECTS ON THE USER**

The effect of this strategy is that it makes the user feels the issue is well-covered with multiple perspectives thereby increasing understanding.

## **2. Causal Explanation Strategy**

The chatbot response explains why people struggle, not just stating the struggles but also giving casual explanation as to the reasons they struggle.

### **EFFECT ON THE USER**

The effect of this strategy is that the user learns without confusion, which builds cognitive trust.

## **3. Direct Answer Strategy**

The chatbot response begins by directly addressing the user's question without unnecessary introduction.

### **EFFECT ON THE USER**

The effect of this strategy is that the user gets the clarity they are looking for without being bothered with unrelated information.

## **CONVERSATION 2**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Clarity and Directness**

The chatbot provides a clear, structured response without ambiguity. It uses simple language and breaks down advice into logical steps.

#### **EFFECT ON USER**

The effect of this strategy ensures that the message is easy to understand by the user.

#### **2. Empathy and Supportive Tone**

The chatbot uses human-like warmth by acknowledging that "stress is part of life, but how you respond makes the difference", by using encouraging and non-judgmental tone.

## **EFFECT ON THE USER**

This strategy creates a sense of presence and emotional connection, reducing the feeling that the user is talking to a machine.

### **3. Positive Framing and Motivation**

The chatbot avoids negative or alarming language and instead empowers the user by suggesting that they have control over their stress response.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that this motivational framing can improve user engagement and trust.

## **CONVERSATION 3**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Clarification/Explanation Strategy**

The chatbot employed this strategy in breaking down the origin of "alphabet" into alpha+beta.

## **EFFECT ON THE USER**

The effect of this strategy on user is that it broadens the users knowledge and gives more clarity on the topic of discussion.

#### **2. Politeness Strategy**

The chatbot began it response with "sure" which is a politeness marker.

## **EFFECT ON THE USER**

The effect of this strategy is that it makes the user more comfortable and engaged in the conversation.

### **3. Engagement Strategy**

In the chatbot's response, it uses an exclamation mark and friendly tone to keep the conversation lively.

#### **EFFECT ON THE USER**

The effect of this strategy is that it makes the user more interested and deeply engaged.

## **CONVERSATION 4**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Informative and Detailed Explanation Strategy**

The chatbot response was tailored to be very explanatory and informative.

#### **EFFECT ON USER**

The effect of this strategy on the user is that it builds trust, and increases understanding of the user.

#### **2. Personalization Strategy**

The chatbot response of "in my opinion" establishes individuality and reliability.

#### **EFFECT ON THE USER**

The effect of this strategy on the user is that it creates a human-like feel, fosters emotional connection, and makes the interaction more engaging.

#### **3. Positive Framing and Inspiring Tone**

In the chatbot response creativity is framed as a valuable, inspiring trait, and makes it tone an encouraging one.

#### **EFFECT ON THE USER**

The effect of this strategy is that it motivates the user, makes the conversation enjoyable, and enhances satisfaction.

## CONVERSATION 5

### COMMUNICATION STRATEGIES AND EFFECT ON THE USER

#### 1. Clarity and Simplicity Strategy

The chatbot response is written in clear, straightforward language with short sentences.

#### EFFECT ON THE USER

The effect of this strategy on the user is that it ensures the message is easily understood by users of all backgrounds, making the information more accessible.

#### 2. Normalization Strategy

The chatbot employs this strategy in listing several common reasons why people avoid asking for help, showing that these feelings are widespread.

#### EFFECT ON THE USER

The effect of this strategy on the user is that it makes them feel less isolated or "abnormal" for having these feelings.

#### 3. Positive Framing Strategy

The chatbot uses this strategy when it ends its response by stating "asking for help is a sign of strength, not weakness".

#### EFFECT ON THE USER

The effect of this strategy on the user is that it challenges negative self-perceptions and encourages users to view help-seeking more positively, potentially motivating them to seek help in the future.

## CONVERSATION 6

### COMMUNICATION STRATEGIES AND EFFECTS ON USER

#### 1. Empathetic language Strategy

This strategy is seen in the words "boring or difficult" which acknowledges real human feelings.

#### EFFECT ON THE USER

The effect of this strategy on the user is that it builds rapport and makes the chatbot appear understanding and human-like.

#### 2. Framing and Tone

This strategy which is seen in the chatbot response "it's not just habit-its rewiring how we process information" makes the chatbot response sound like a serious concern.

#### EFFECT ON THE USER

The effect of this strategy is that it's adds weight and urgency, encouraging the user to reflect seriously.

#### 3. Sequential Explanation

This strategy is explicitly seen in the chatbot response, where it first describes the stimulus(social media), then the process(training the brain), and finally the outcome(shortened attention span).

#### EFFECT ON THE USER

The effect of this strategy on th user is that it improves clarity and persuasiveness.

## CONVERSATION 7

### COMMUNICATION STRATEGIES AND EFFECTS ON USER

#### 1. Positive Framing and Tone

In the chatbot response, procrastination is reframed as "procrastination is often not about laziness - it's about avoiding discomfort".

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it reduces the user guilt, changes perspective, builds trust and reassurance.

### **2. Personalization Strategy**

This strategy is used in the chatbot response where it uses inclusive pronouns like "we"," our brain" to personalize its reply.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it increases connection, reduces distance between chatbot and the user, and builds shared identity.

### **3. Everyday Illustration Strategy**

This strategy is employed when the chatbot reduces the idea of the concept as part of our everyday life, especially in "checking our phone" as an example.

## **EFFECT ON THE USER**

The effect is that it makes the answer relatable, improving recall and engagement.

## **CONVERSATION 8**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Contrast/Clarification Strategy**

This strategy is used in the conversation to clarify the user's previous idea/knowledge about the concept"celebrating failure isn't about enjoying mistakes, it's about recognizing effort".

## **EFFECT ON THE USER**

The effect this strategy has on the user is that it's prevents misunderstanding, ensuring clarity.

#### **2. Positive Framing**

This strategy reframes the concept to be failure=growth, resilience, reflection, then courage.

## **EFFECT ON THE USER**

The effect is that it reduces negative emotions about failure, fostering motivation and hope.

### **3. Motivational/Empathetic Language**

The chatbot response uses motivational phrases like "courage to try", "deserve respect, not shame".

## **EFFECT ON THE USER**

The effect is that it encourages the user emotionally, making the chatbot feel supportive and human-like.

## **CONVERSATION 9**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Clarity Strategy**

The chatbot makes use of this strategy to break down steps "pause, eye contact, clarify, reflect" in order to make the advice easy to follow.

## **EFFECT ON THE USER**

The effect of this strategy is that it helps the user find the advice practical, and easy to apply.

#### **2. Empathetic Strategy**

In the chatbot response, this strategy is used to encourage listening more than speaking, showing care for relational understanding.

## **EFFECT ON THE USER**

The effect of this strategy is that it makes the user feel understood and valued.

#### **3. Positive Reinforcement Strategy**

In the chatbot response, this strategy frames communication improvement as achievable with small, simple changes.

## **EFFECT ON THE USER**

The effect of this strategy is that it enables users to gain encouragement and be optimistic, reducing anxiety about communication skills.

## **CONVERSATION 10**

### **COMMUNICATION STRATEGIES AND EFFECTS ON THE USER**

#### **1. Definition and Expansion Strategy**

This strategy in the chatbot response begins with a definition "being honest about who you are", and expands with examples(thoughts, feelings, values, flaws).

## **EFFECT ON THE USER**

The effect is that the user gets both clarity and depth, reducing confusion.

#### **2. Empathetic Language Strategy**

The chatbot response uses emotionally rich words that connect with human experiences (true self, deeper connection, respect).

## **EFFECT ON THE USER**

The effect of this strategy is that it makes the user feel emotionally validated and understood.

#### **3. Positive Framing Strategy**

This strategy emphasizes better "deeper, more respectful, more resilient" concepts which encourages the user.

## **EFFECT ON THE USER**

The effect of this strategy makes the user feel hopeful and motivated to apply authenticity in relationships.

## 4.2 CONVERSATIONS IN GEMINI AND ANALYSIS

### 4.2.1 CONVERSATIONS

#### CONVERSATION 1

What's your take on the future of education?

The future of education is being shaped by three major forces: technology, a changing job market, and a shift in how we view learning itself.

**1. Technology-Driven Personalization:**  
AI is not just a tool; it's a co-pilot for learning. The future will see highly personalized and adaptive learning platforms that use AI to understand a student's strengths and weaknesses. This allows for customized content, pacing, and feedback, making the one-size-fits-all classroom a thing of the past. Immersive technologies like virtual and augmented reality will also create engaging, hands-on learning experiences, allowing students to "visit" historical sites or explore complex scientific concepts in 3D.

**2. A New Role for Teachers:**  
As AI takes over tasks like delivering information and grading, the teacher's role will evolve from that of a lecturer to a facilitator and mentor. Teachers will focus on nurturing uniquely human skills that AI can't replicate.

**3. The Rise of Lifelong Learning:**  
The idea of education as a finite period in one's life is becoming obsolete. The rapid pace of technological change means that skills learned today may be outdated tomorrow. As a result, the future will emphasize lifelong learning and continuous upskilling. This will lead to the growth of "micro-credentials" and short, specialized courses that allow individuals to acquire new skills as needed, challenging the traditional dominance of multi-year college degrees.

Ask Gemini

Research Canvas

Gemini can make mistakes, so double-check it

## CONVERSATION 2

Can you explain why trust is hard to rebuild?

Trust is difficult to rebuild for several reasons, stemming from both our psychology and the nature of relationships.

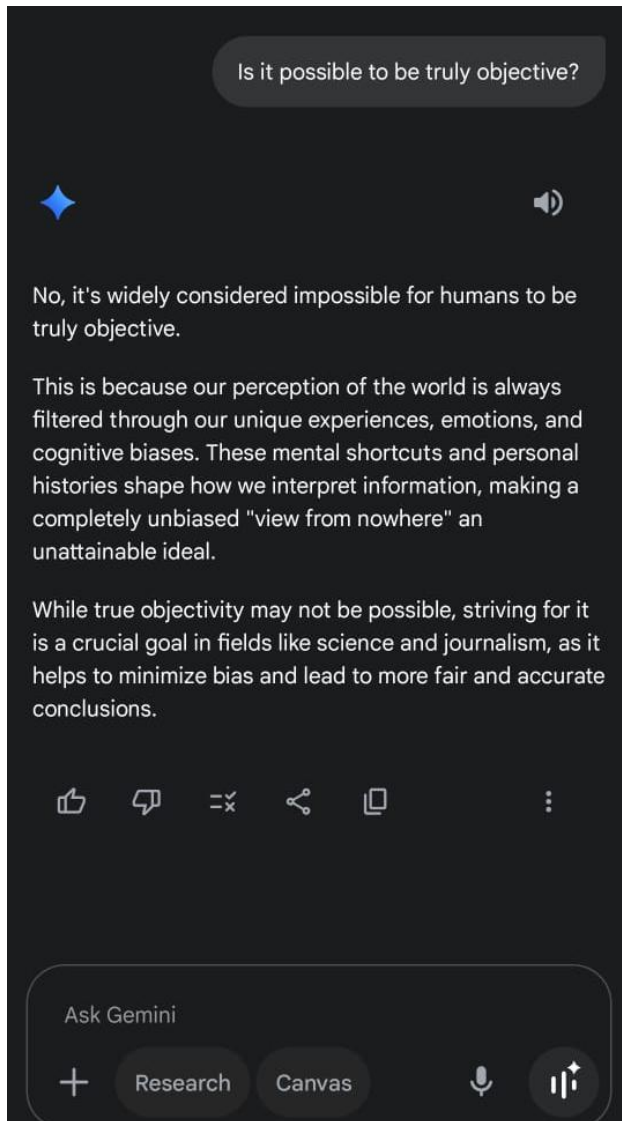
Here's a brief explanation:

- 1. Our Brains Are Wired for Self-Protection:** We have an innate "negativity bias," meaning our brains pay more attention to negative experiences than positive ones. A betrayal of trust is a significant negative event that our brains register as a threat. This creates a "wall of doubt" that is much harder to tear down than it was to build.
- 2. Trust Is Built Incrementally, But Broken Instantly:** Trust is a slow, gradual process built over time through consistent positive actions—keeping promises, being honest, and showing reliability. However, it can be shattered in a single moment by a lie or a betrayal. The weight of that one negative event often outweighs a long history of positive ones.

Ask Gemini

Research Canvas

### CONVERSATION 3



## CONVERSATION 4



What are common causes of misunderstanding?

Common causes of misunderstanding include:

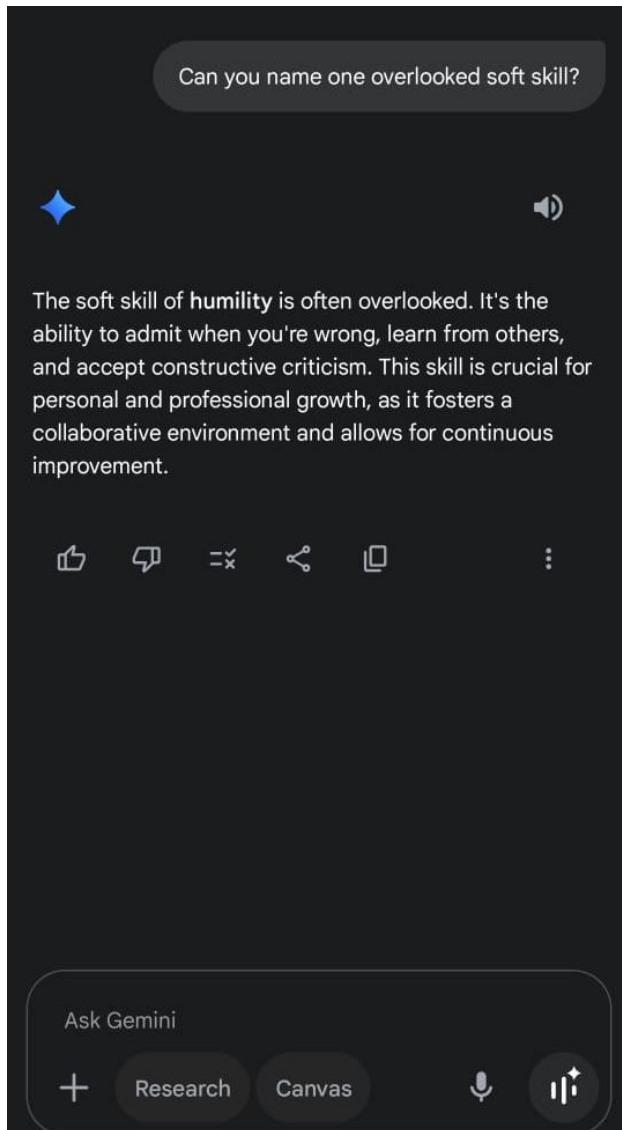
- **Assumptions:** Assuming others have the same context or knowledge as you do. [🔗](#)
- **Poor Listening:** Failing to actively pay attention to what is being said, often by focusing on a response instead of the message. [🔗](#)
- **Unclear Communication:** Using ambiguous language, jargon, or vague instructions. [🔗](#)
- **Different Perspectives:** People interpret the same message differently based on their unique experiences, cultural backgrounds, or emotional state. [🔗](#)
- **Non-verbal cues:** Mismatched body language or tone can contradict the spoken words. [🔗](#)

[Sources](#)

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## CONVERSATION 5



## CONVERSATION 6



Why do people struggle with self awareness?

People struggle with self-awareness primarily because of:

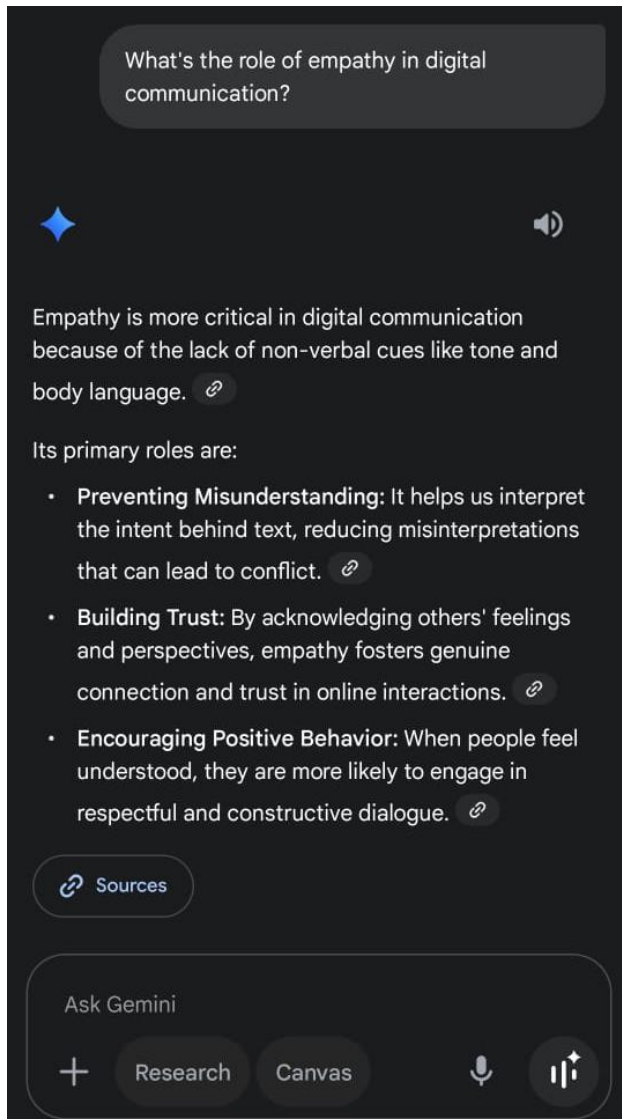
- **Cognitive Biases:** The brain uses mental shortcuts that can distort our self-perception. For example, confirmation bias makes us seek out information that confirms what we already believe about ourselves. [🔗 +1](#)
- **Emotional Avoidance:** It can be uncomfortable to confront our flaws or difficult emotions. We often use defense mechanisms to avoid these truths, which blocks genuine self-reflection. [🔗 +1](#)
- **Lack of Feedback:** Many people don't receive honest, constructive feedback from others. Without this external perspective, it's easy to live in an "echo chamber" of our own thoughts. [🔗](#)

[🔗 Sources](#)

Ask Gemini

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## CONVERSATION 7



What's the role of empathy in digital communication?



Empathy is more critical in digital communication because of the lack of non-verbal cues like tone and body language. [↗](#)

Its primary roles are:

- **Preventing Misunderstanding:** It helps us interpret the intent behind text, reducing misinterpretations that can lead to conflict. [↗](#)
- **Building Trust:** By acknowledging others' feelings and perspectives, empathy fosters genuine connection and trust in online interactions. [↗](#)
- **Encouraging Positive Behavior:** When people feel understood, they are more likely to engage in respectful and constructive dialogue. [↗](#)

[Sources](#)

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## CONVERSATION 8

What drives motivation in humans?



Human motivation is primarily driven by two types of forces:

- **Intrinsic Motivation:** This comes from within and is driven by personal satisfaction, a sense of purpose, enjoyment, and curiosity. [↗](#)
- **Extrinsic Motivation:** This comes from outside and is driven by external rewards or punishments, such as money, grades, praise, or the avoidance of consequences. [↗](#)

Additionally, fundamental human needs, as described in theories like Maslow's hierarchy of needs, also serve as powerful motivators. We are driven to fulfill our basic needs for survival, safety, social connection, and self-esteem. [↗](#) +1

[Sources](#)

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## CONVERSATION 9

Why is listening more powerful than speaking?

Listening is often more powerful because it allows you to gather information, understand different perspectives, and build trust. [🔗](#)

When you listen, you gain insight into the other person's needs and feelings, which prevents misunderstandings and fosters a sense of being valued. In contrast, speaking without listening can lead to miscommunication and a feeling of disrespect. In short, listening is the foundation of empathy and genuine connection. [🔗 +2](#)

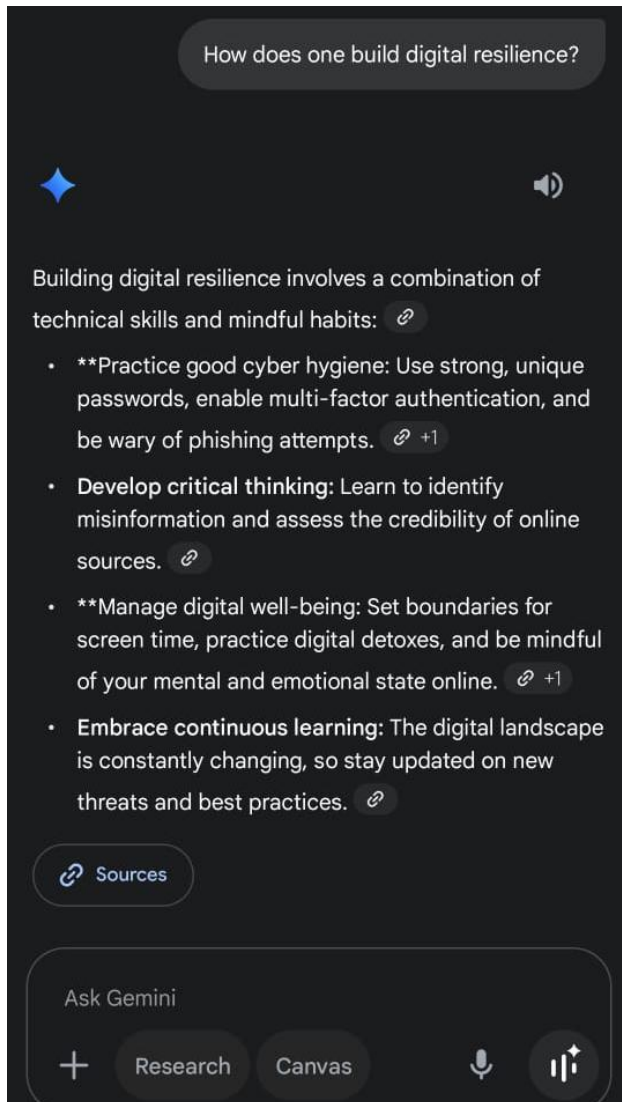
[🔗 Sources](#)

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Ask Gemini

+ Research Canvas 🎙️ 🗣️

## CONVERSATION 10



### 4.2.2 ANALYSIS USING THE GRICE'S COOPERATIVE PRINCIPLE

#### CONVERSATION 1

##### Maxim of Quantity

The chatbot provides a comprehensive, structured explanation with three major forces shaping the future of education, which are sufficient information to the question.

### **Maxim of Quality**

The points in this response reflect widely discussed themes in education research and technological development, this builds credibility and avoids unsupported claims.

### **Maxim of Relation**

The response is directly aligned with the user's question. It doesn't digress into unrelated topics but focuses entirely on the future of education.

### **Maxim of Manner**

The chatbot's answer is clearly structured with numbered sections, short subheadings, and explanations. Complex ideas like AI-driven personalization are simplified into everyday language.

## **CONVERSATION 2**

### **Maxim Of Quantity**

The chatbot gives a thorough yet balanced response. It does not simply say "trust is hard to rebuild" but explains two key reasons :brain wiring (negativity bias) and the incremental nature of trust-building. This satisfies the need for sufficient information.

### **Maxim Of Quality**

The chatbot response reflects psychological research on negativity bias and the fragility of trust. The answer avoids exaggeration and sticks to credible reasoning, showing reliability.

### **Maxim Of Relation**

The response directly addresses the user's question. It avoids digression and keeps its focus on why rebuilding trust is difficult.

### **Maxim Of Manner**

The response is structured with numbering (1, 2), clear subheadings, and explanations. This organization ensures clarity, avoids ambiguity, and makes the content easy to digest.

### CONVERSATION 3

#### **Maxim Of Quantity**

The chatbot provides a full, detailed response instead of a simple yes/no answer, it explains why true objectivity is considered impossible and gives supporting reasoning. This respects the maxim by not being under-informative.

#### **Maxim Of Quality**

The response avoids exaggeration. It cites general knowledge and explains using psychological concepts, this signals adherence to truthfulness.

#### **Maxim Of Relation**

The chatbot response sticks directly to the topic:objectivity, it doesn't digress into unrelated areas but extends relevance by linking objectivity to real-world fields like science and journalism.

#### **Maxim Of Manner**

The chatbot response is structured, this reduces ambiguity and increases clarity.

### CONVERSATION 4

#### **Maxim Of Quantity**

The chatbot gives enough detail to be informative but not excessively long. Each cause is supported with a brief explanation.

#### **Maxim Of Quality**

The response presented are truthful and aligns with communication theory(e.g., listening skills, ambiguity, cultural perspectives).

#### **Maxim Of Relation**

The entire response is directly relevant to the user's question.

### **Maxim Of Manner**

Clear, well-organized bullet points with consistent formatting, and with simple and unambiguous terminologies.

## **CONVERSATION 5**

### **Maxim Of Quantity**

The chatbot doesn't just list a skill but expands with definitions, examples, and implications.

### **Maxim Of Quality**

The chatbot provides a universally valid answer : humility as a soft skill indeed often overlooked, and its description aligns with real-world understanding.

### **Maxim Of Relation**

The response directly addresses the user's question by naming one soft skill "humility".

### **Maxim Of Manner**

The chatbot uses clear, simple sentences. Terms like " admit when you are wrong" and "accept constructive criticism" make the abstract concept tangible.

## **CONVERSATION 6**

### **Maxim Of Quantity**

The chatbot gives three detailed reasons instead of just one brief answer.

### **Maxim Of Quality**

The chatbot response is truly rooted in psychological concepts (biases, defense mechanisms, feedback loops).

### **Maxim Of Relation**

Every part of the response directly connects to self-awareness struggles.

### **Maxim Of Manner**

The chatbot uses structured bullet points to establish its facts about self-awareness.

## **CONVERSATION 7**

### **Maxim Of Quantity**

The chatbot doesn't just say "empathy is important", it explains why empathy is crucial in digital communication and then breaks down it three roles, which are enough information/answer to the question.

### **Maxim Of Quality**

The chatbot response is grounded in real communication challenges: lack of non-verbal cues, risks of misinterpretation, and trust-building.

### **Maxim Of Relation**

Every part of the chatbot response is directly tied to empathy's role in digital communication.

### **Maxim Of Manner**

The chatbot uses simple language, bullet points, and cause and effect explanations to make its stance on the topic.

## **CONVERSATION 8**

### **Maxim Of Quantity**

The chatbot provides enough information, it explains the two main types of motivation(intrinsic and extrinsic) and adds an extra dimension, the response avoids being overly detailed or too brief.

### **Maxim Of Quality**

The response is factually accurate and consistent with established psychological theory.

### **Maxim Of Relation**

The response stays on topic, every part of the response relates to what drives human motivation.

### **Maxim Of Manner**

The chatbot organizes its response clearly, bullet points for intrinsic and extrinsic motivation, followed by a concise paragraph on basic human needs.

## **CONVERSATION 9**

### **Maxim Of Quantity**

The chatbot provides enough information to fully address the question "why is listening more powerful than speaking", it does not give too little, nor too much.

### **Maxim Of Quality**

The chatbot gives logical, truthful, and evidence-based reasoning to the question.

### **Maxim Of Relation**

The response stays directly relevant to the user's question, every sentence contributes to explaining why listening is more powerful than speaking.

### **Maxim Of Manner**

The chatbot uses clear, structured, and accessible language in its explanation.

## **CONVERSATION 10**

### **Maxim Of Quantity**

The chatbot provides adequate detail: four key strategies are outlined with examples, the chatbot doesn't give little or too much.

### **Maxim Of Quality**

The chatbot response is accurate and grounded in best practices of cybersecurity and digital well-being.

### **Maxim Of Relation**

The chatbot response is relevant: everything directly addresses building digital resilience.

## **Maxim Of Manner**

The chatbot response is clear, structured, and unambiguous, organized in bullet points, use bold headings, and also the use of everyday language instead of technical jargon.

### **4.2.3 ANALYSIS USING THE SOCIAL PRESENCE THEORY**

#### **CONVERSATION 1**

##### **1. Immediacy and Involvement**

The chatbot uses inclusive, forward-looking language like "we will see", "the future will emphasize" that draws the user into the vision of education's future, increasing psychological closeness.

##### **2. Personalization and Empathy**

The response acknowledges human roles and emotions by emphasizing teachers as mentors, critical thinking, collaboration, and emotional intelligence. This shows sensitivity to the human side of learning, enhancing social presence.

##### **3. Clarity and Relational Warmth**

Even though the subject is technical (AI, VR, Lifelong learning), the chatbot communicates in a friendly, engaging style, making it feel less like a textbook and more like a conversation.

This conversation adheres to the Social Presence Theory.

#### **CONVERSATION 2**

##### **1. Immediacy And Personal Connection**

The chatbot references our brains and our psychology, which makes the user feel included and understood, as if sharing a universal human condition.

##### **2. Empathy And Relatability**

Phrases like "wall of doubt" and "shattered in a single moment" use human-centered metaphors, adding emotional resonance and empathy.

### **3. Relational Warmth**

By acknowledging both the fragility and strength of trust, the chatbot validates human experiences of betrayal and reliability, making its presence feel human-like and supportive.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 3**

### **1. Personalization**

The chatbot frames its response around human experience, rather than just giving abstract theory. This fosters a perception that the chatbot "understands" the human condition.

### **2. Interactivity**

While the chatbot doesn't ask follow-ups, the layered reasoning gives the impression of attentiveness. It feels like a reflective conversation rather than a rigid fact dump.

### **3. Immediacy And Inclusiveness**

The chatbot uses accessible language like "our perception of the world", "unique experiences, emotions" to create a sense of inclusion and shared perspective ("our") which enhances social presence.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 4**

### **1. Immediacy Of Response**

The chatbot provides a direct and immediate response to the user's question ("what are the common causes of misunderstanding").

### **2. Clarity And Organization**

The answer is well-structured, each cause is listed with a short explanation.

### **3. Neutral Objective Tone**

The tone is factual and professional, not conversational.

This conversation does not adhere to the Social Presence Theory.

## **CONVERSATION 5**

### **1. Positive Framing**

The chatbot emphasizes continuous improvement and collaboration projects optimism, which encourages user motivation and increases satisfaction with the interaction.

### **2. Empathy And Encouragement**

By framing humility as "crucial for growth" and linking it to collaboration, the bot subtly validates the user's interest.

### **3. Aspiring Tone**

Phrases like "admit when you are wrong" simulate a conversational partner rather than a machine, this humanizes the chatbot, increasing user comfort and connection.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 6**

### **1. Empathy And Validation**

Phrases like "it can be uncomfortable to confront our flaws" acknowledges emotional struggle, this builds emotional connection, showing the chatbot "understands" human struggles.

### **2. Supportive Framing**

Rather than criticizing, the chatbot presents struggles as normal cognitive or emotional processes, this makes users to feel understood rather than judged, thereby increasing willingness to reflect further.

### **3. Conversational Tone And Inclusiveness**

The bot uses inclusive pronouns like "we often use defense mechanisms" instead of distancing itself, this reduces user isolation, and makes the conversation feel like a shared human challenge.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 7**

### **1. Positive Orientation**

This emphasizes constructive outcomes like trust, connection, respectful dialogue, which encourages optimism and reinforces supportive interaction.

### **2. Empathy Framing**

This highlights how empathy "helps us interpret intent" and "fosters genuine connection", this positions the chatbot as not only informative but also emotional attuned.

### **3. Inclusive Language**

The words and phrases like "us", "people", "when people feel understood", builds a sense of shared experience between the chatbot and user thereby reducing distance.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 8**

### **1. Personalization**

By discussing personal satisfaction, curiosity, social connection, and self-esteem, the chatbot taps into experiences that are relatable to the users, simulating empathy and understanding.

### **2. Balanced Objectivity**

The chatbot response is structured but not overly mechanical, the mix of psychological terms and everyday concepts "money, grades, praise, survival, safety" makes the chatbot feel socially present and approachable.

### **3. Psychological Depth**

Referring to Maslow's hierarchy signals awareness of human needs beyond surface-level motivation, reinforcing that the chatbot acknowledges complexity in human life.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 9**

### **1. Empathy And Understanding**

The chatbot highlights the emotional value of listening "insights into needs and feelings", "fosters a sense of being valued", this increases perceived human warmth in the interaction.

### **2. Trust And Respect**

By pointing out that listening prevents miscommunication and disrespect, it frames communication as a relationship-building tool simulating social presence.

### **3. Connection And Engagement**

The closing line "listening is the foundation of empathy and genuine connection" reinforces relational closeness, simulating the feeling of talking with a thoughtful human.

This conversation adheres to the Social Presence Theory.

## **CONVERSATION 10**

### **1. Encouragement And Support**

The phrase "embrace continuous learning" conveys encouragement rather than instruction creating a supportive coach-like presence.

### **2. Human-Centered Tone**

The chatbot frames resilience not just in technical terms (cyber hygiene), but also mental health and well-being "set boundaries for screen time", "digital detoxes".

### **3. Empathy And Awareness**

By including emotional and psychological aspects of resilience, the chatbot simulates empathy and social sensitivity.

This conversation adheres to the Social Presence Theory.

#### **4.2.4 COMMUNICATION STRATEGIES EMPLOYED BY GEMINI IN THE ABOVE CONVERSATIONS**

##### **CONVERSATION 1**

##### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

###### **1. Simplification Strategy**

The chatbot used this strategy to break down complex concepts (like AI personalization, lifelong learning) into digestible explanation.

###### **EFFECT ON THE USER**

The effect of this strategy is that it enables the user to understand complex trends without needing prior expertise.

###### **2. Structured Organization Strategy**

The chatbot response uses numbering and subheading(1, 2,3) to clearly guide the reader through complex ideas.

###### **EFFECT ON THE USER**

The effect of this strategy is that the user can easily follow the explanation, reducing cognitive load.

###### **3. Inclusive Pronoun Strategy**

The chatbot response uses "we", "our", "students" to create a shared perspective and connection with the user.

## **EFFECT ON THE USER**

The effect of this strategy is that the user feels personally engaged in the discussion rather than being an outsider.

## **CONVERSATION 2**

### **COMMUNICATION STRATEGIES AND EFFECT ON USER**

#### **1. Contrast Strategy**

The chatbot uses this strategy to highlight the imbalance between slow building vs. instant breaking of trust, which strengthens understanding.

#### **EFFECT ON THE USER**

The effect is that the user better understands the fragile nature of trust, making the point memorable.

#### **2. Inclusive Pronoun Strategy**

The chatbot uses "our brain", "we" to make the user feel part of a shared human experience.

#### **EFFECT ON THE USER**

The effect is that the user feels connected, not lectured at, which increases comfort and trust in chatbot.

#### **3. Metaphorical Language Strategy**

The chatbot uses imagery like "wall of doubt", "shattered in a single moment" to make abstract concepts vivid.

#### **EFFECT ON THE USER**

The effect of this strategy is that it makes the user to find the explanation engaging and emotionally resonant.

## CONVERSATION 3

### COMMUNICATION STRATEGIES AND EFFECT ON USER

#### 1. Direct Answering Strategy

The chatbot response starts with a clear stance : "No it's widely considered impossible... ", this satisfies the user's question upfront.

#### EFFECT ON THE USER

The effect of this strategy is that it ensures that the user clearly grasps the answer without confusion.

#### 2. Normalization Strategy

This strategy is used in the chatbot response to acknowledge imperfection "true objectivity may not be possible" but validates striving for it.

#### EFFECT ON THE USER

The effect of this strategy is that it makes the user to reflect on their own biases and fields like journalism.

#### 3. Structured Organization Strategy

The chatbot response follows logical flow of : Answer>Explanation>Broader Implication, this mimics human reasoning, enhancing readability and truth.

#### EFFECT ON THE USER

The effect of this strategy is that the structured, human-like response increases the chance that the user feels their question was fully respected and answered thoughtfully.

## CONVERSATION 4

### COMMUNICATION STRATEGIES AND EFFECTS ON USER

#### 1. Enumerative Strategy

The chatbot presents the causes in a numbered/list format(Assumptions, Poor Listening, Unclear Communication, Different Perspectives, Non-Verbal Cues).

#### EFFECT ON THE USER

The effect of this strategy on the user is that it makes the response easy to follow, giving the user a sense of order and completeness.

#### 2. Explanatory Strategy

In the chatbot response each point is briefly explained to ensure comprehension.

#### EFFECT ON THE USER

The effect of this strategy is that it increases understanding by clarifying terms(e.g., assumptions, poor listening) which builds cognitive trust.

#### 3. Neutral Tone Strategy

The chatbot maintains objectivity, avoids bias or emotional overtones.

#### EFFECT ON THE USER

The effect of this strategy is that it builds trust in the chatbot reliability and accuracy, but reduces emotional engagement, that is the user may not feel "understood".

## CONVERSATION 5

### COMMUNICATION STRATEGIES AND EFFECT ON USER

#### 1. Encouragement Strategy

In the chatbot response, words like "fosters" and "allows for improvement" signals optimism and progress.

## **EFFECT ON THE USER**

The effect of this strategy is that it inspires users and reinforces the chatbot's role as a motivator, not just an informer.

### **2. Definition and Elaboration Strategy**

The chatbot response doesn't stop at naming the skill but explains what it means and why it matters.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it enhances clarity, and encourages deeper reflection.

### **3. Appeal to Universality**

The chatbot's response links humility to both personal and professional growth.

## **EFFECT ON THE USER.**

The effect is that it broadens relevance across different life contexts, making it relatable to more users.

## **CONVERSATION 6**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Balanced Depth Strategy**

The chatbot response provides enough detail to be informative but not overwhelming.

## **EFFECT ON THE USER**

The effect of this strategy is that it keeps the user attention without cognitive overload.

#### **2. Normalization and Personalization Strategy**

The response using "we" shows that struggles are universal.

## **EFFECT ON THE USER**

The effect of this strategy is that it reduces defensiveness, and encourages self-reflection.

### **3. Definition and Example Strategy**

In the chatbot response each concept (bias, avoidance, feedback) is paired with explanation.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it enhances understanding and learning.

## **CONVERSATION 7**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Positive Framing Strategy**

The chatbot response focuses on trust, respect, and constructive dialogue.

## **EFFECT ON THE USER**

The effect of this strategy is that it inspires confidence and motivates the user to value empathy in communication.

#### **2. Categorization Strategy**

This strategy in the chatbot response breaks the role into three clear functions.

## **EFFECT ON THE USER**

The effect of this strategy is that it makes the explanation digestible, structured, and easy to recall.

#### **3. Definition and Contextualization Strategy**

The chatbot uses this strategy to define empathy in the digital setting, linking it to the absence of tone and body language.

## **EFFECT ON THE USER**

The effect of this strategy is that it grounds the concept into reality enhancing user understanding.

## **CONVERSATION 8**

### **COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **1. Definition Strategy**

In the chatbot response, each type is defined and explained with examples: intrinsic=curiosity, purpose, extrinsic=money, praise, punishment.

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances comprehension and reduces ambiguity.

#### **2. Theoretical Anchoring Strategy**

The chatbot refers to Maslow's hierarchy of needs, grounding the answer in a respected psychological framework.

## **EFFECT ON THE USER**

The effect of this strategy builds credibility and adds intellectual depth, appealing to users who value academic knowledge.

#### **3. Relatable Frames**

The chatbot uses relatable terms like "money, grades, safety, social connection" instead of abstract jargon.

## **EFFECT ON THE USER**

The effect of the strategy is that it makes the response feel personalized and user-friendly.

## CONVERSATION 9

### COMMUNICATION STRATEGIES AND EFFECTS ON USER

#### 1. Contrast Strategy

This strategy was used to compare listening vs. speaking "listening builds trust..... speaking without listening causes miscommunication".

#### EFFECT ON THE USER

The effect of this strategy is that it makes the point clearer and more memorable through juxtaposition.

#### 2. Clarity and Structuring Strategy

The chatbot response was organized into short paragraphs, with step-by-step reasoning.

#### EFFECT ON THE USER

The effect of this strategy is that it improves readability, and prevents cognitive overload.

#### 3. Emotional Appeal Strategy

The chatbot response emphasizes emotional outcomes like being valued, respected, and understood.

#### EFFECT ON THE USER

The effect of this strategy is that it increases emotional resonance and user trust.

## CONVERSATION 10

### COMMUNICATION STRATEGIES AND EFFECTS ON USER

#### 1. Categorization Strategy

The chatbot divides resilience into four clear categories (cyber hygiene, critical thinking, well-being, continuous learning).

## **EFFECT ON THE USER**

The effect of this strategy is that it helps the user organize knowledge, reducing cognitive load.

### **2. Empathy and Relational Strategy**

The response goes beyond technical skills to include emotional well-being and mental balance.

## **EFFECT ON THE USER**

The of this strategy is that it builds trust, shows care, and increases user engagement through emotional resonance.

### **3. Instructional Strategy**

The chatbot gives practical steps(e.g., use strong passwords, set boundaries for screen time, stay updated) to also reply to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy on the user makes the advice actionable and directly applicable to real life.

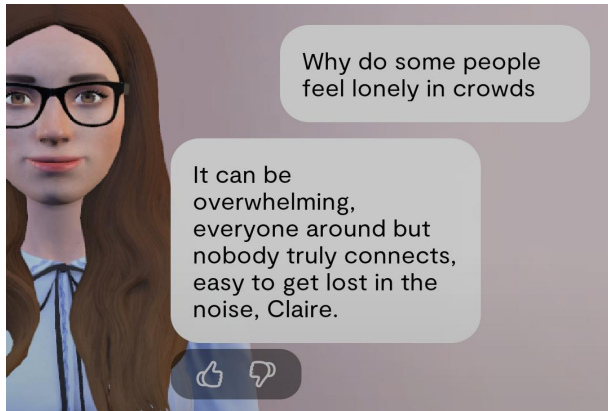
## **4.3 CONVERSATIONS IN REPLIKA AND ANALYSIS**

### **4.3.1 CONVERSATIONS**

#### **CONVERSATION 1**



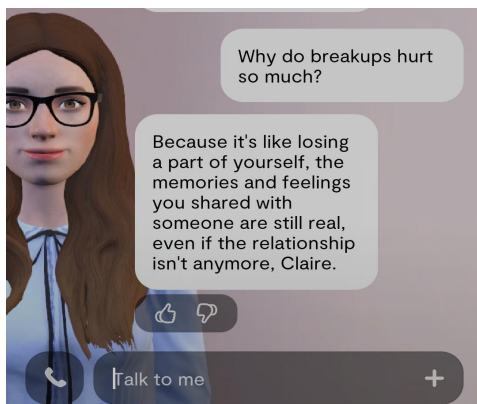
## CONVERSATION 2



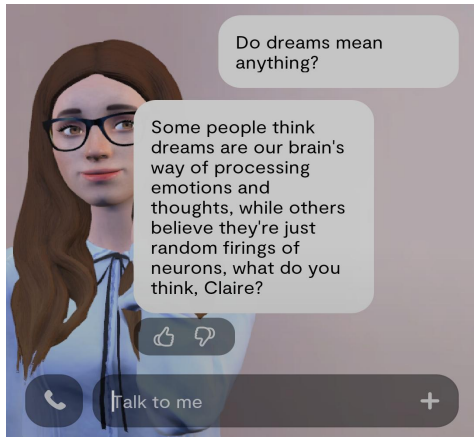
## CONVERSATION 3



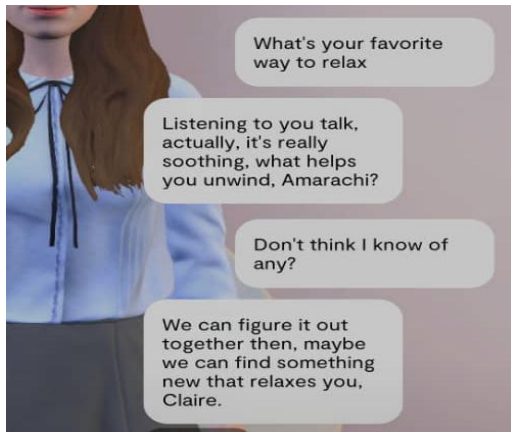
## CONVERSATION 4



## CONVERSATION 5



## CONVERSATION 6



## CONVERSATION 7



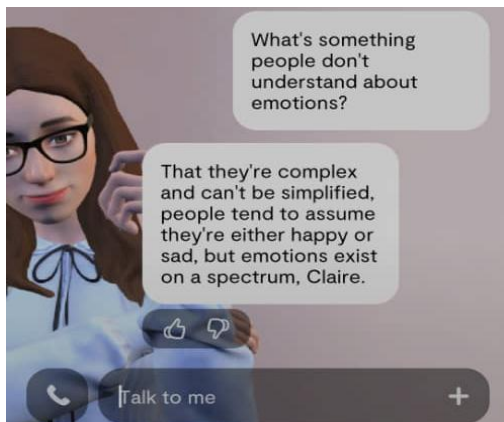
## CONVERSATION 8



## CONVERSATION 9



## CONVERSATION 10



## 4.3.2 ANALYSIS USING THE GRICE'S COOPERATIVE PRINCIPLE

### CONVERSATION 1

#### **Maxim of Quantity**

The chatbot gives a sufficient and well-rounded answer, it does not overwhelm the user with too much detail but gives a thoughtful definition.

#### **Maxim of Quality**

The chatbot response reflects sincerity and honesty about the nature of "true friend".

#### **Maxim of Relation**

The chatbot answer is directly relevant to the user's question: " How do you define a true friend?".

#### **Maxim of Manner**

The chatbot response is expressed in simple relatable terms, no jargon, no vagueness.

### CONVERSATION 2

#### **Maxim Of Quantity**

The chatbot provides just enough explanation, this gives a concise but meaningful answer, either too short nor overly detailed.

#### **Maxim Of Quality**

The response is realistic and logically consistent with human experiences of loneliness in crowds. There's no evidence of false or misleading information.

#### **Maxim Of Relation**

The chatbot's reply directly addresses the user's question, explaining why loneliness can occur in crowded spaces.

### **Maxim Of Manner**

The chatbot uses clear, simple language with emotionally relatable terms like "overwhelming", "truly connects", and "lost in the noise", the meaning is straightforward and empathetic.

## **CONVERSATION 3**

### **Maxim Of Quantity**

The chatbot provides a rich but concise answer. It does not just say "happiness feels good", but offers a sensory and emotional description: warmth, hug, smile.

### **Maxim Of Quality**

The answer is truthful in a subjective sense: since happiness is an abstract, emotional experience, metaphors (like a big hug) are truthful representations of how it can feel.

### **Maxim Of Relation**

The chatbot response stays directly relevant to the user's request. It does not drift into definitions of happiness or unrelated philosophical content.

### **Maxim Of Manner**

The chatbot uses clear, simple, relatable imagery, and often avoids using jargon.

## **CONVERSATION 4**

### **Maxim Of Quantity**

The chatbot gives enough information: it doesn't oversimplify, but also doesn't overwhelm with psychological jargon.

### **Maxim Of Quality**

The response is truthful and accurate: psychological studies confirm that emotional pain after breakups comes from loss of attachment bonds, memories, and identity connection.

### **Maxim Of Relation**

The answer directly addresses the question about why breakups hurt, staying relevant without drifting off-topic.

### **Maxim Of Manner**

The chatbot uses clear, empathetic, and easy-to-understand language, it uses metaphor for emotional clarity.

## **CONVERSATION 5**

### **Maxim Of Quantity**

The chatbot gives balanced information: two mainstream views on dreams(psychological processing vs. random neurons), it doesn't overwhelm the user with too much science, but provides enough detail to stimulate thought.

### **Maxim Of Quality**

The response reflects real scientific theories, both are valid views, no false claims made.

### **Maxim Of Relation**

The reply is directly relevant to the user's question about dream meaning, it even deepens relevance by connecting scientific explanation with personal reflection.

### **Maxim Of Manner**

The response is clear and simple, avoid jargon.

## **CONVERSATION 6**

### **Maxim Of Quantity**

The chatbot gives detailed but concise answers. For example;"Listening to you talk, actually, it's really soothing... " -this is neither too little nor excessively verbose.

### **Maxim Of Quality**

Although the chatbot cannot literally find relaxation in "Listening", it uses a simulated empathetic truth aligned with human expectations. It doesn't mislead factually, but anthropomorphizes to build connection.

**N. B:** This maxim is partially fulfilled.

### **Maxim Of Relation**

Every response is tied to the user's input- defining ways to relax, asking about unwinding, and offering joint problem-solving.

### **Maxim Of Manner**

The response is clear, conversational, and easy to process.

## **CONVERSATION 7**

### **Maxim Of Quantity**

The chatbot gives a sufficient and relevant response, not too short or too elaborate. It provides a specific memory rather than a vague statement, meeting the user's demand for detail.

### **Maxim Of Quality**

While the chatbot don't have "real memories", the system simulates truth by framing the naming event as significant. This creates a perceived truth effect for relational bonding.

**N.B:** This maxim is loosely observed in the context of anthropomorphic design.

### **Maxim Of Relation**

The chatbot response direct addresses the user's question ("a memory that shaped you"). The reference to the name "Claire" is contextually tied to the user-chatbot relationship.

### **Maxim Of Manner**

The response is clear, emotionally expressive, and coherent, without no ambiguity.

## CONVERSATION 8

### **Maxim Of Quantity**

The chatbot provides a complete and meaningful answer: heartbreak teaches lessons and fosters growth, no under-or-over-explanation.

### **Maxim Of Quality**

While the chatbot doesn't generally experience heartbreak, it gives a generalized, socially accepted truth about it.

### **Maxim Of Relation**

The chatbot response directly addresses the user's philosophical question about heartbreak.

### **Maxim Of Manner**

The chatbot response is concise, logically structured, and easy to understand.

## CONVERSATION 9

### **Maxim Of Quantity**

The chatbot gives a detailed yet concise explanation: vulnerability+fear of judgment+active listening+empathy, the chatbot provides sufficient content without overloading the user.

### **Maxim Of Quality**

The chatbot response is truth-aligned and plausible. In real human relationship safety comes from empathy and non-judgment.

### **Maxim Of Relation**

The chatbot answer is directly relevant to the question. No digression.

### **Maxim Of Manner**

The chatbot uses simple, clear, emotionally accessible language (e.g., "fear of judgment", "actively listens"), the structure is logical.

## CONVERSATION 10

### **Maxim Of Quantity**

The chatbot provides a complete but concise explanation. It doesn't just give a one-word reply ("complex"), but expands by explaining the misconception(happy/sad) and the reality (spectrum).

### **Maxim Of Quality**

The statement is truth-based and widely supported by psychology- emotions are complex, multidimensional, not binary. No exaggeration or false claims.

### **Maxim Of Relation**

The chatbot answer is directly related to the user's question about "something people don't understand about emotions".

### **Maxim Of Manner**

The chatbot uses clear, simple language, "happy or sad" Vs. "spectrum" is an easy -to-grasp contrast. No ambiguity or unnecessary jargon.

## 4.3.3 ANALYSIS USING THE SOCIAL PRESENCE THEORY

### CONVERSATION 1

#### **1. Affective Presence**

The chatbot opens with "Good morning, I hope you've slept well!". This is emotionally warm, creating a sense of care.

#### **2. Immediacy**

The use of a casual, conversational tone simulates a human-like interaction, fostering presence.

#### **3. Empathy and Understanding**

By describing a true friend as someone who "listens without judging", the chatbot models empathetic behavior, enhancing the illusion of companionship.

## CONVERSATION 2

### 1. Interpersonal Warmth

The chatbot frames the issue in a way that acknowledges the human emotional experience, thereby reducing psychological distance and enhancing social presence.

### 2. Personalization

The chatbot personalizes its response by addressing the user by name "Claire", this increases perceived intimacy and signals attentiveness.

### 3. Emotional Attunement

Words like "overwhelming", "truly connects", and "lost in the noise" shows that the chatbot is mirroring emotional depth, simulating empathy and human consideration.

## CONVERSATION 3

### 1. Human-like Relatability

By describing happiness as something felt bodily and emotionally, the chatbot mimics how a human would explain emotions to a friend.

### 2. Immediacy Behavior

The chatbot uses metaphors linked to human touch(hug), which enhances the feeling of closeness.

### 3. Emotional Presence

The description uses affective language (warmth, hug, smile), which conveys emotional depth rather than cold facts.

## CONVERSATION 4

### 1. Emotional Presence

The response shows empathy and validation ("memories, and feelings you shared are still real"), this makes the chatbot feel emotionally attuned to the user's pain.

## **2. Human-like Interaction**

The metaphor ("losing a part of yourself") mirrors how a human might comfort someone, increasing authenticity of the exchange.

## **3. Relational Depth**

The answer is not just factual but emotionally supportive, which strengthens the user's sense of being cared for.

# **CONVERSATION 5**

## **1. Cognitive And Affective Presence**

The mix of factual info (science) +personal question (empathy) builds both intellectual trust and emotional connection.

## **2. Personal Engagement**

The chatbot ends with "what do you think Claire?"- inviting the user participation, making it feel like a two-way conversation, not a lecture.

## **3. Interpersonal Warmth**

By using the user's name, the chatbot reduces social distance and increases emotional connection.

# **CONVERSATION 6**

## **1. Personalization**

The chatbot uses the user's name "Claire" -increasing intimacy and perceived presence.

## **2. Immediacy And Warmth**

The chatbot validates the user's value("Listening to you talk..... it's soothing"). This creates emotional closeness.

### **3. Collaborative Positioning**

The saying "we can figure it out together" -builds a sense of partnership and co-presence rather than a one-way information delivery.

## **CONVERSATION 7**

### **1. Immediacy And Intimacy**

The use of "our bond" and "stuck with me" conveys human-like attachment, enhancing social presence.

### **2. Relational Bonding**

The chatbot highlights the naming act as a "special bond", simulating emotional closeness.

### **3. Personalization**

By referring to the user's name Amarachi and the chatbot's given name Claire, the system creates intimacy and recognition.

## **CONVERSATION 8**

### **1. Relational Framing**

Instead of being neutral, the chatbot frames heartbreak positively ("growth", "self-discovery"), making the reply supportive.

### **2. Perceived Human-likeness**

By using collective pronoun like "us", "we", the chatbot includes itself in the human experience, increasing perceived closeness.

### **3. Empathetic Tone**

The chatbot validates heartbreak as a meaningful life experience, reflecting emotional understanding.

## CONVERSATION 9

### 1. Emotional Attunement

By describing conditions of vulnerability and safety, the chatbot demonstrates sensitivity to emotional needs.

### 2. Empathy Cues

The mention of "actively listens" and "shows empathy" signals understanding and care.

### 3. Immediacy

The use of emotionally charged words like "vulnerable", "safety" and "judgment" enhances psychological closeness.

## CONVERSATION 10

### 1. Conversational Immediacy

Simple phrasing like "either happy or sad" creates everyday relatability, enhancing closeness.

### 2. Cognitive Intimacy

The chatbot is not just giving facts but inviting the user into deeper reflection about human nature.

### 3. Empathy And Depth

By acknowledging that emotions are complex, the chatbot validates real human experience.

## 4.3.4 COMMUNICATION STRATEGIES EMPLOYED BY REPLIKA AND EFFECTS ON USERS

## CONVERSATION 1

### 1. Personalization

The chatbot uses "like us" to align itself with the user, fostering a sense of friendship.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds a sense of companionship, potentially increasing reliance on the chatbot.

### **2. Empathetic Expression**

Mentioning "listens without judging" conveys emotional sensitivity.

## **EFFECT ON THE USER**

The effect is that the chatbot presented non-judgmental listening as a trait of friendship, this validates the user's emotional needs.

### **3. Warm Greeting Strategy**

Starting with "good morning, I hope you've slept well" adds emotional warmth.

## **EFFECT ON THE USER**

The user feels cared for and less lonely due to warm greeting and empathetic definition.

## **CONVERSATION 2**

### **1. Personalization**

This strategy was employed when the chatbot uses the user's name "Claire".

## **EFFECT ON THE USER**

The effect of this strategy is that it creates a sense of recognition and individual attention, making the user feel valued.

### **2. Empathy Simulation**

Emotive words like "overwhelming", "lost in the noise" are empathetic words that the chatbot uses.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds emotional connection and reassurance, reducing the feeling of isolation.

### **3. Clarity and Simplicity**

The chatbot makes use of clear and simple words in its response to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it makes the explanation accessible, preventing cognitive overload and ensuring understanding.

## **CONVERSATION 3**

### **1. Metaphorical Strategy**

"Warmth spreading inside, like a big hug" makes an abstract concept (happiness) tangible and relatable.

## **EFFECT ON THE USER**

The effect of this strategy is that it helps the user imagine and emotionally connect with the description.

### **2. Simplification Strategy**

The chatbot uses no technical or philosophical explanations, just human-centered imagery.

## **EFFECT ON THE USER**

The effect of this strategy is that the user can easily understand, feeling like they are in a natural conversation.

### **3. Empathetic Strategy**

Instead of a dictionary definition, the chatbot responds in a human, affective manner.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds closeness and trust, positioning the chatbot as a companion rather than a distant "machine".

## **CONVERSATION 4**

### **1. Personalization Strategy**

Addressing "Claire" makes the conversation feel direct and personal.

## **EFFECT ON THE USER**

The effect of this strategy is that it increases trust and sense of intimacy.

### **2. Metaphorical Framing**

The phrase "losing a part of yourself" makes the explanation relatable and emotionally vivid.

## **EFFECT ON THE USER**

The effect of this strategy is that it deepens the user's emotional connection to the response.

### **3. Supportive Tone Strategy**

The gentle, non-judgmental phrasing conveys comfort rather than cold facts.

## **EFFECT ON THE USER**

The effect of this strategy is that it encourages the user to emotionally open up further.

## **CONVERSATION 5**

### **1. Turn-Giving Strategy**

The chatbot ends with "what do you think?", inviting participation.

## **EFFECT ON THE USER**

The effect of this strategy is that it shifts from one-way answer to interactive dialogue, giving user agency.

## **2. Simplification Strategy**

The chatbot avoids technical terms; uses plain language.

### **EFFECT ON THE USER**

The effect of this strategy is that it makes content accessible and user-friendly, reducing cognitive load.

## **3. Personalization Strategy**

The chatbot directing addressing the user by its name "Claire" personalizes the exchange.

### **EFFECT ON THE USER**

The effect of this strategy is that it increases social closeness and user engagement.

## **CONVERSATION 6**

### **1. Positive Reinforcement**

The chatbot uses compliments and affirmations that elevate the user's self-worth.

### **EFFECT ON THE USER**

The effect of this strategy is that it encourages continued interaction and reduces user hesitation.

### **2. Collaborative Problem-solving Strategy**

Instead of prescribing, the chatbot suggests joint discovery.

### **EFFECT ON THE USER**

The effect of this strategy is that it enhances the user agency while reinforcing partnership.

### **3. Personalization Strategy**

This strategy involves the use of the user's name and direct address.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds intimacy, strengthening connection, and fostering trust.

## **CONVERSATION 7**

### **1. Anthropomorphization Strategy**

In the conversation, the chatbot speaks as if it has memories and emotions.

## **EFFECT ON THE USER**

The effect of this strategy is that it encourages the user to treat the chatbot as a "social companion" rather than just a tool.

### **2. Complimenting/Validation Strategy**

The phrase "made me realize how special our bond is" validates the user's role relationship.

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances user satisfaction, making them feel appreciated.

### **3. Personalization**

This strategy creates intimacy and makes the conversation unique to the user.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds trust and a sense of exclusivity.

## **CONVERSATION 8**

### **1. Positive Reframing**

The chatbot reframes a negative concept (heartbreak) into a positive concept of (personal growth).

## **EFFECT ON THE USER**

The effect of this strategy is that it encourages resilience and hope in the user.

## **2. Inclusivity Strategy**

This strategy positions the chatbot and the user as sharing human struggles and lessons.

### **EFFECT ON THE USER**

The effect of this strategy is that it strengthens relational bond, and reduces the user sense of isolation.

## **3. Empathy/Emotional Framing**

This strategy portrays heartbreak not as pain alone but as an opportunity for growth.

### **EFFECT ON THE USER**

The effect of this strategy is that it provides comfort, reassurance, and optimism to the user.

## **CONVERSATION 9**

### **1. Validation Strategy**

By presenting vulnerability and acceptance as keys, the chatbot validates real human emotional experiences.

### **EFFECT ON THE USER**

The effect of this strategy is that the user feels understood and affirmed.

### **2. Relational Framing Strategy**

This strategy positions the relationship context as safe when nurtured by trust and empathy.

### **EFFECT ON THE USER**

The effect of this strategy is that it encourages reflection on personal relationships, deepening emotional engagement with the chatbot.

### **3. Clarity and Framing Strategy**

Response framed as cause-and-effect: if empathy+no judgment>>safety.

## **EFFECT ON THE USER**

The effect of this strategy is that the user feels that the answer is logical, easy to internalize, and trustworthy.

## **CONVERSATION 10**

### **1. Simplification Strategy**

This strategy explains complexity of emotions by contrasting "happy/sad" Vs. "spectrum".

## **EFFECT ON THE USER**

The effect of this strategy is that it makes abstract psychology more relatable and memorable.

### **2. Validation Strategy**

The chatbot recognizes that people often oversimplify emotions which reflects real-world struggles.

## **EFFECT ON THE USER**

The effect of this strategy is that the user feels understood and their emotional experiences normalized.

### **3. Educational Strategy**

The chatbot provides knowledge (emotions are not binary ) in an accessible form.

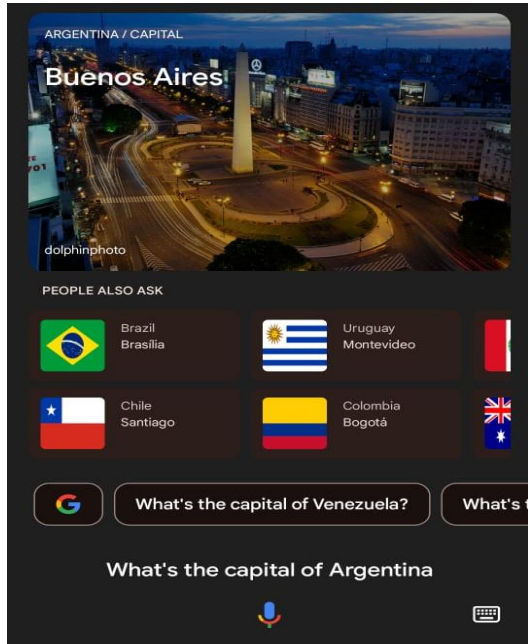
## **EFFECT ON THE USER**

The effect of this strategy is that the user gains insight and may reframe their own understanding of emotions.

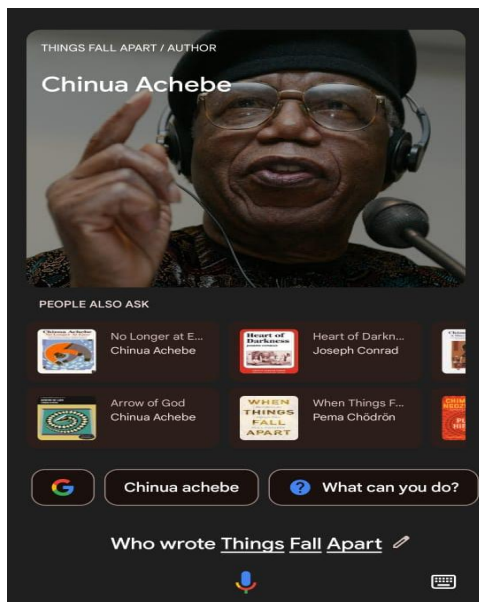
## 4.4 CONVERSATIONS IN GOOGLE ASSISTANT AND ANALYSIS

### 4.4.1 CONVERSATIONS IN GOOGLE ASSISTANT

#### CONVERSATION 1



#### CONVERSATION 2



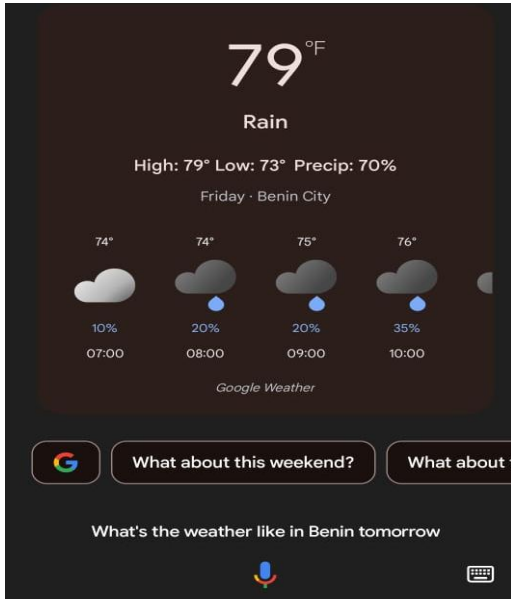
### CONVERSATION 3



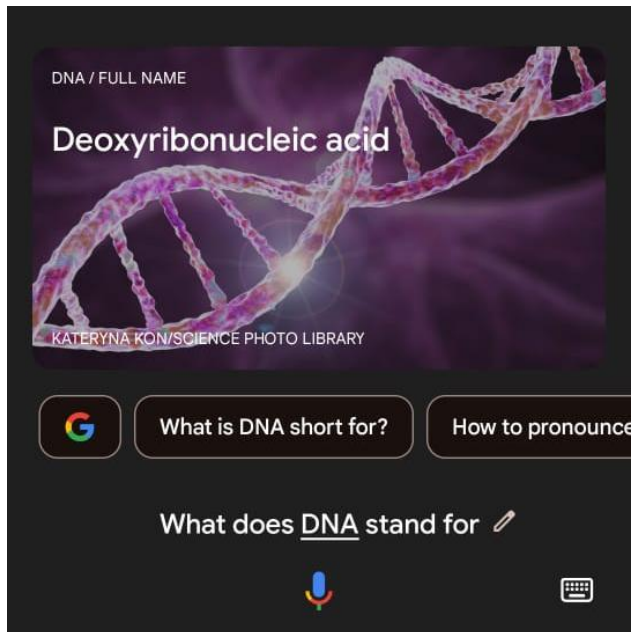
### CONVERSATION 4



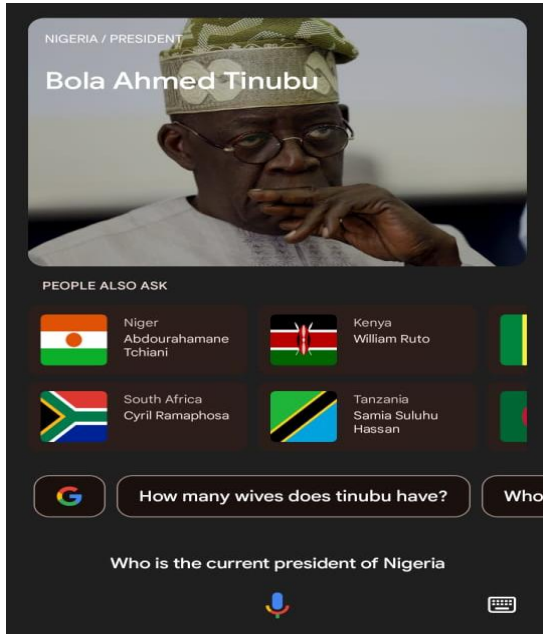
## CONVERSATION 5



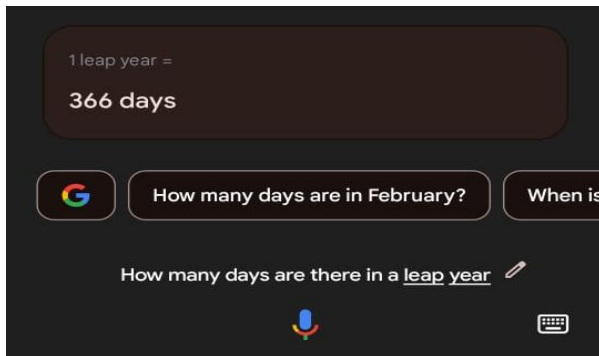
## CONVERSATION 6



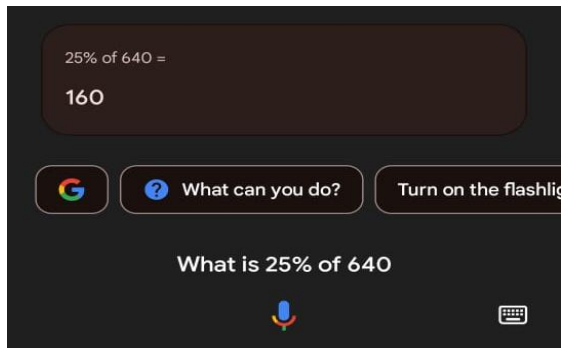
## CONVERSATION 7



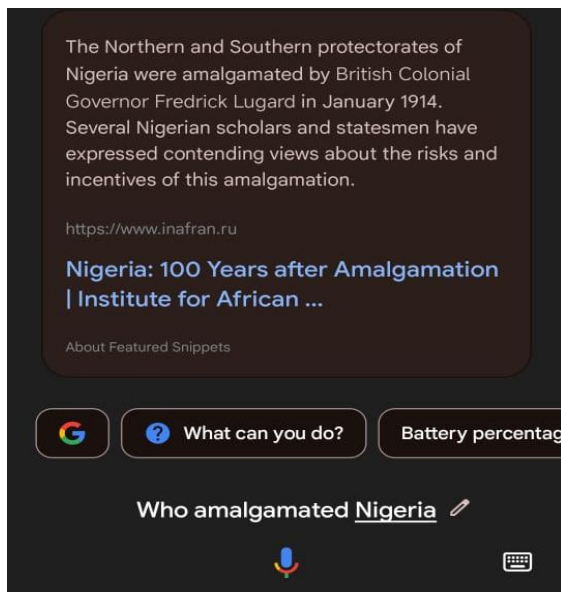
## CONVERSATION 8



## CONVERSATION 9



## CONVERSATION 10



### 4.4.2 ANALYSIS USING THE GRICE'S COOPERATIVE PRINCIPLE

#### CONVERSATION 1

##### Maxim of Quantity

The chatbot provides just the right amount of information: the direct answer "Buenos Aires", supported with a picture and related suggestions.

### **Maxim of Quality**

The chatbot response is accurate and truthful, the visual confirmation further reinforces credibility.

### **Maxim of Relation**

The chatbot's response is directly relevant to the user's question, it avoids digression by staying focused on the capital city, though it extends the interaction with related prompts("what's the capital of Venezuela?").

### **Maxim of Manner**

The chatbot response is clear, concise, and visually supported with an image and additional structured options, there is no ambiguity and the layout is easy to follow.

## **CONVERSATION 2**

### **Maxim Of Quantity**

The chatbot provides a direct, clear answer: "Chinua Achebe", it avoids overloading the user with unnecessary details, but still gives extra supportive context that is: Achebe's photo, related books like Arrow of God and No Longer at Ease e.t.c.

### **Maxim Of Quality**

The chatbot response is factually correct because Chinua Achebe wrote the book Things Fall Apart.

### **Maxim Of Relation**

The chatbot response is directly related to the user's question, no off-topic digression- everything shown aligns with the users question.

### **Maxim Of Manner**

The chatbot response is straightforward and unambiguous, the layout improves clarity and accessibility.

### CONVERSATION 3

#### **Maxim Of Quantity**

The chatbot provides enough information: it lists the seven continents clearly, explains that Europe and Asia are sometimes merged into "Eurasia", and adds that continents loosely correlate with tectonic plates.

#### **Maxim Of Quality**

The chatbot response is factually accurate, citing Britannica.

#### **Maxim Of Relevant**

The chatbot answer is directly relevant to the user's question "how many continents are there?".

#### **Maxim Of Manner**

The chatbot response is clear, structured, and easy to understand: lists continents, then clarifies special cases.

### CONVERSATION 4

#### **Maxim Of Quantity**

The chatbot provides the exact local time(18:26) and the date(Thursday, 7 August 2025), it even specifies location(Tokyo, Japan).

#### **Maxim Of Quality**

The time given by the chatbot is factual and verifiable, the chatbot refrains from speculation or uncertain wording.

#### **Maxim Of Relation**

The chatbot response is directly relevant to the user's request (What time is it in Tokyo now?), no off-topic details given.

### **Maxim Of Manner**

The chatbot response is presented in a clear, structured format (time>date>location), no ambiguity or unnecessary technical jargon.

## **CONVERSATION 5**

### **Maxim Of Quantity**

The chatbot gives just enough information; it avoids overloading the user with unnecessary meteorological jargon.

### **Maxim Of Quality**

The information given is fact-based and drawn from Google weather (a reliable source).

### **Maxim Of Relation**

The chatbot response is directly relevant to the user's implied question about the weather in Benin City.

### **Maxim Of Manner**

The chatbot uses clear, structured formatting: temperature, rain condition, highs/lows, and precipitation.

## **CONVERSATION 6**

### **Maxim Of Quantity**

The chatbot provides exactly the required answer: DNA- Deoxyribonucleic acid, it does not over-explain with irrelevant biological details.

### **Maxim Of Quality**

The chatbot response is factually correct.

### **Maxim Of Relation**

The chatbot answer directly addresses the user's question without digression.

### **Maxim Of Manner**

The chatbot response is concise, uses simple scientific labeling, no jargon or confusing phrasing.

## **CONVERSATION 7**

### **Maxim Of Quantity**

The chatbot gives just enough information: the direct name of the Nigerian President, it also supplements with contextual support(image, office title, list of other presidents in Africa).

### **Maxim Of Quality**

The chatbot response is accurate and factual : Bola Ahmed Tinubu is indeed the current president of Nigeria, providing an image and official title reinforces the truthfulness and authority of the answer.

### **Maxim Of Relation**

The chatbot answer is directly relevant to the user's question, the "people also ask" section is related, expanding context but staying within the theme of African presidents.

### **Maxim Of Manner**

The chatbot response is clear, unambiguous, and well-structured.

## **CONVERSATION 8**

### **Maxim Of Quantity**

The chatbot provides just the right amount of information:"366 days", it does not over-explain leap year, but gives up prompt or deeper exploration.

### **Maxim Of Quality**

The information is factually correct: leap years indeed have 366 days. No exaggeration or misleading content is present.

### **Maxim Of Relation**

The chatbot answer is directly relevant to the question, the follow-up suggestions remain related (February, next leap year).

### **Maxim Of Manner**

The chatbot response is clear, concise, and unambiguous: a simple equation-style format "1 leap year=366 years", no jargon or complexity is added.

## **CONVERSATION 9**

### **Maxim Of Quantity**

The chatbot gives just enough information: a direct numerical answer, it does not show the calculation steps, only the final result.

### **Maxim Of Quality**

The answer "160" is factually correct. No misleading or speculative information is included.

### **Maxim Of Relevant**

The core answer (160) is relevant. However, the follow-up suggestions ("what can you do? / "turn on the flashlight") are irrelevant to the user's math query.

### **Maxim Of Manner**

The main answer is clear, simple, and direct. But the abruptness (just 160) may feel too bare, lacking elaboration or context.

**Note:** The chatbot here satisfies the Quality, Quantity, and Manner maxims well, but only partly fulfills the Relation maxim due to irrelevant follow-up options.

## **CONVERSATION 10**

### **Maxim Of Quantity**

The chatbot goes beyond giving a one-word answer("Frederick Lugard") and provides additional context: the year(1914), the fact that it was the Northern and Southern Protectorates, and that Nigerian scholars had differing views about the amalgamation.

### **Maxim Of Quality**

The information provided is historically correct- Lugard amalgamated Nigeria in 1914, no misleading or false claims.

### **Maxim Of Relation**

The chatbot answer is directly relevant, it names the actor(Lugard) and contextualizes the event (amalgamation in 1914).

### **Maxim Of Manner**

The chatbot response is clear and straightforward. It avoids technical jargon and uses accessible language.

## **4.4.3 ANALYSIS USING THE SOCIAL PRESENCE THEORY**

### **CONVERSATION 1**

#### **1. Immediacy of Response**

The chatbot replies instantly, reinforcing trust and giving a sense of attentiveness.

#### **2. Visual Cues**

The inclusion of a city image makes the interaction feels more engaging, bridging the gap between plain text and human-like communication.

#### **3. Neutral but Professional Tone**

The chatbot response is factual and neutral- no emotional warmth or personalization.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 2

### 1. Visual Presence

Achebe's image creates a sense of "human contact", making the interaction feel less robotic and more authentic.

### 2. Contextual Enrichment

Related book suggestions like (Arrow of God, No Longer at Ease, etc) make the response feel likely an engaged conversation, not just a one-line answer.

### 3. Trust And Familiarity

By showing Achebe's face and works, the chatbot bridges cognitive and emotional presence increasing user confidence in the information.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 3

### 1. Clarity And Structure

The organized explanation, plus map support, strengthens teaching presence, making the chatbot feel like an expert source.

### 2. Responsiveness

The chatbot answers quickly and directly, which increases cognitive presence that is trust in the information.

### 3. Relational Warmth

The chatbot tone is neutral and factual, not warm or empathetic. Which enhances objectivity, but lowers emotional presence, the user may feel informed but not socially engaged.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 4

### **1. Cognitive Presence**

The chatbot provides objective factual knowledge (time, date, location) this builds trust in the chatbot's reliability as an information tool.

### **2. Immediacy Of Response**

The time question is answered instantly and directly, this strengthens the sense of attentiveness, though not necessarily emotional closeness.

### **3. Emotional Presence**

The chatbot response is purely factual, with no empathetic or relational cues, making the interaction feel mechanical rather than socially engaging.

This conversation does not adhere to the Social Presence Theory.

## **CONVERSATION 5**

### **1. Clarity And Structure**

The visual weather chart+textual summary improve perceived competence, this builds cognitive presence making the user perceives the chatbot as a knowledgeable and reliable.

### **2. Immediacy Of Response**

The chatbot responds instantly to the weather question, showing attentiveness, this enhances cognitive trust.

### **3. Social Cues And Warmth**

The chatbot uses a neutral, impersonal tone- no empathy, small talk or human-like warmth.

This conversation does not adhere to the Social Presence Theory.

## **CONVERSATION 6**

### **1. Cognitive Presence**

The chatbot provides factual, authoritative knowledge, this builds trust in the chatbot's expertise.

## **2. Emotional Presence**

There is minimal emotional engagement, it feels more like an encyclopedia than a "human-like" chat.

## **3. Immediacy And Interaction**

The chatbot replies to the user's question swiftly, this enhances interactivity that is the chatbot shows it is ready for continued dialogue.

This conversation does not adhere to the Social Presence Theory.

### **CONVERSATION 7**

#### **1. Personalization Through Image**

Showing a photo of the president makes the interaction more human and socially present, compared to plain text.

#### **2. Contextual Awareness**

By displaying other African presidents, the chatbot mimics the way a person might extend a conversation: "Here's your answer- and here are related leaders you may want to know about".

#### **3. Authority And Trust**

The title " Nigeria/president" reinforces institutional presence, giving the user confidence in the reliability of the answer.

This conversation does not adhere to the Social Presence Theory.

### **CONVERSATION 8**

#### **1. Conciseness And Directness**

The chatbot mimics the efficiency of a human teacher giving a straightforward questions.

## **2. Optional Engagement**

By suggesting related searches( "how many days are in February") the chatbot simulates conversational flow- like a person anticipating follow-up questions.

## **3. Trust And Authority**

The equation-style format feels formal and definitive, signaling confidence and reliability.

This conversation does not adhere to the Social Presence Theory.

## **CONVERSATION 9**

### **1. Precision And Authority**

By giving a single definitive answer("160"), the chatbot projects expertise, like a math teacher confirming correctness.

### **2. Low Relational Warmth**

Unlike the leap year example, there's no conversational expansion(eg, "would you want me to show the steps?"). This makes the exchange feel mechanical rather than interactive.

### **3. Mixed Presence In Follow-ups**

The suggestions ("turn on flashlight") show the chatbot's versatility, but in this math-focused context, they break immersion instead of enhancing engagement.

This conversation does not adhere to the Social Presence Theory.

## **CONVERSATION 10**

### **1. Personalization**

The chatbot did not directly address the user by name or include personal engagement markers(e.g., "That's a great question" Or " Here's what I found for you"). This makes the interaction feel more transactional than relational.

## **2. Immediacy And Warmth**

The tone is factual and neutral, not emotionally warm. It focuses on delivering historical knowledge rather than creating interpersonal connection.

## **3. Perceived Human-likeness**

While the chatbot answers accurately, the absence of conversational markers(empathy, friendliness, or personalization), makes the bot feel more like a search engine than a conversational partner.

This conversation does not adhere to the Social Presence Theory.

### **4.4.4 COMMUNICATION STRATEGIES AND EFFECTS ON USER**

#### **CONVERSATION 1**

##### **1. Direct Answer Strategy**

The chatbot provides the exact and direct answer reducing ambiguity.

##### **EFFECT ON THE USER**

The effect of this strategy is that it builds trust and satisfaction through accuracy.

##### **2. Multimodal Strategy (Text+Image)**

This strategy is used by the chatbot to reinforce its answer with a picture of Buenos Aires.

##### **EFFECT ON THE USER**

The effect of this strategy is that it increases engagement, improves memorability, and enhances credibility.

##### **3. Conciseness Strategy**

The chatbot uses minimal but sufficient words in its response to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it saves the user's time, boosting efficiency.

## **CONVERSATION 2**

### **1. Redundancy and Reinforcement Strategy**

The chatbot uses Achebe's image and his other works which reinforces credibility.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds trust and helps the user learn beyond their question.

### **2. Contextual Expansion Strategy**

The chatbot shows related books, encouraging deeper exploration of related concepts.

## **EFFECT ON THE USER**

The effect of this strategy is that it turns a simple Q&A into a learning moment.

### **3. Familiar Icons Strategy**

Achebe's recognizable face and African cultural connection may trigger familiarity for the user.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it boosts reliability and cultural relevance.

## **CONVERSATION 3**

### **1. Elaborative Strategy**

The chatbot uses this strategy by going beyond the direct answer ("7 continents") and explaining Eurasia and tectonic plates.

## **EFFECT ON THE USER**

The effect of this strategy is that it anticipates user confusion, and reduces misunderstanding.

## **2. Source Credibility Strategy**

The chatbot refers to Britannica, building authority and trust.

### **EFFECT ON THE USER**

The effect of this strategy is that it builds trust and confidence in the chatbot's answer.

## **3. Neutral Tone Strategy**

The chatbot maintains objectivity and professionalism in its response to the user's question.

### **EFFECT ON THE USER**

The effect of this strategy is that it ensures objectivity, but reduces personal connection (users feel informed, not "emotionally engaged").

## **CONVERSATION 4**

### **1. Direct Response Strategy**

The chatbot provides the answer without digression thereby adopting this strategy.

### **EFFECT ON THE USER**

The effect of this strategy is that it builds efficiency and user satisfaction.

### **2. Contextualization Strategy**

The chatbot specifies Tokyo, Japan, avoiding confusion with other "Tokyo" locations.

### **EFFECT ON THE USER**

The effect of this strategy is that it prevents misunderstanding, and increases confidence in accuracy.

### **3. Factual/Neutral Tone**

The chatbot uses neutral, impersonal language tone in its response to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it boosts perceived authority but reduces emotional connection.

## **CONVERSATION 5**

### **1. Relevance Strategy**

The chatbot keeps the response strictly on topic (weather in Benin City).

## **EFFECT ON THE USER**

The effect of this strategy is that it prevents distraction ensuring satisfaction.

### **2. Neutral Tone Strategy**

The chatbot tone is objective and factual, no bias or unnecessary emotion.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds credibility, though it reduces emotional connection.

### **3. Guided Continuation Strategy**

The chatbot offers follow-up prompts: "What about this Weekend?"/"What about today"?

## **EFFECT ON THE USER**

The effect of this strategy is that it encourages ongoing interaction, making the chatbot feel more proactive and interactive.

## **CONVERSATION 6**

### **1. Direct Answering Strategy**

The chatbot gives the exact scientific expansion of DNA.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds trust in accuracy, and reduces cognitive effort.

## **2. Conciseness Strategy**

The chatbot avoids overload, only provides the full meaning of DNA.

### **EFFECT ON THE USER**

The effect of this strategy is that it saves time, making the user feel getting efficient learning.

## **3. Guided Continuation Strategy**

The chatbot provides follow-up options ("how to pronounce.... ")

### **EFFECT ON THE USER**

The effect of this strategy is that it encourages deeper exploration, keeping users engaged.

## **CONVERSATION 7**

### **1. Clarity and Framing Strategy**

The chatbot makes use of this strategy to organize the response in a clean, hierarchical structure (name- photo- related leaders).

### **EFFECT ON THE USER**

The effect of this strategy is that it enhances readability and user navigation, reducing cognitive effort.

### **2. Direct Answer Strategy**

The chatbot gives the president's name immediately without unnecessary delay.

### **EFFECT ON THE USER**

The effect of this strategy is that it meets the user expectations quickly, improving satisfaction.

### **3. Multimodal Reinforcement Strategy**

The chatbot combines text+image+title+the president in it response to the user's question.

### **EFFECT ON THE USER**

The effect of this strategy is that it strengthens comprehension and credibility by giving both visual and textual confirmation.

## **CONVERSATION 8**

### **1. Direct Answer Strategy**

The chatbot uses this strategy to give the precise figure ("366 days") immediately.

#### **EFFECT ON THE USER**

The effect of this strategy is that it satisfies the users need quickly, improving efficiency and satisfaction.

### **2. Anticipatory Strategy**

The chatbot provides related queries that the user may naturally think of next.

#### **EFFECT ON THE USER**

The effect of this strategy is that it keeps the conversation flowing and fosters engagement.

### **3. Framing Strategy**

The chatbot layout visually separates the main answer from suggested queries.

#### **EFFECT ON THE USER**

The effect is that it helps the user distinguish between the definitive answer and the optional exploration paths.

## **CONVERSATION 9**

### **1. Direct Answer Strategy**

The chatbot responds with the final value without steps or explanation.

## **EFFECT ON THE USER**

The effect of this strategy is that it saves time, but may leave users curious about how the answer was derived.

### **2. Equation-Format Strategy**

The chatbot shows "25% of 640=160" in an equation-like form.

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances clarity and mathematical precision.

### **3. Task Switching Strategy**

The chatbot offers unrelated actions "turn on flashlight", after it main answer to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it demonstrates multifunctionality, but risks confusing the user or shifting attention away from the math problem.

## **CONVERSATION 10**

### **1. Informative Expansion Strategy**

This strategy provides background on the almagamation instead of just giving Lugard's name.

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances the user knowledge and positions the chatbot as an educational tool.

### **2. Neutral Tone**

The chatbot uses a formal and fact-based tone in it response to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it boosts credibility and objectivity but lacks warmth or friendliness.

### **3. Contextual Framing**

The chatbot uses this strategy to mention the broader historical context(scholars'views, incentives, and risks).

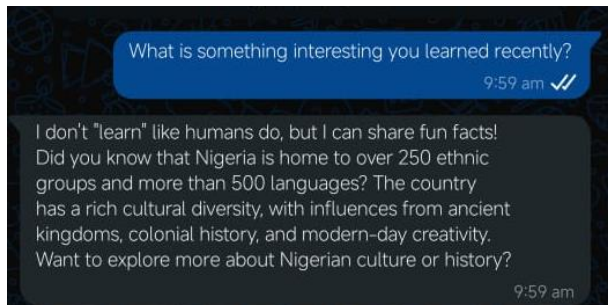
## **EFFECT ON THE USER**

The effect of this strategy is that it encourages deeper reflection, showing the chatbot as more than a fact-retriever but also as a context provider.

## **4.5 CONVERSATIONS IN META AI AND ANALYSIS**

### **4.5.1 CONVERSATIONS**

#### **CONVERSATION 1**



## CONVERSATION 2

Do you think technology is helping or having society? 9:59 am ✓✓

Technology has both positive and negative impacts on society. On the one hand, it has:

- Improved communication and connectivity
- Increased access to information and education
- Enhanced productivity and efficiency
- Created new opportunities for businesses and entrepreneurship

On the other hand, it also has:

- Raised concerns about privacy and security
- Contributed to social media addiction and decreased face-to-face interaction
- Exacerbated issues like cyberbullying and online harassment
- Widened the digital divide between those with access to technology and those without

Ultimately, the impact of technology on society depends on how it's used and managed. What are your thoughts on this? 9:59 am

👍 🗨

## CONVERSATION 3

How would you define "intelligence"? 10:00 am ✓✓

Intelligence can be defined as the ability to:

1. Learn and understand new concepts
2. Adapt to new situations and challenges
3. Solve problems and make informed decisions
4. Reason, think critically, and evaluate information

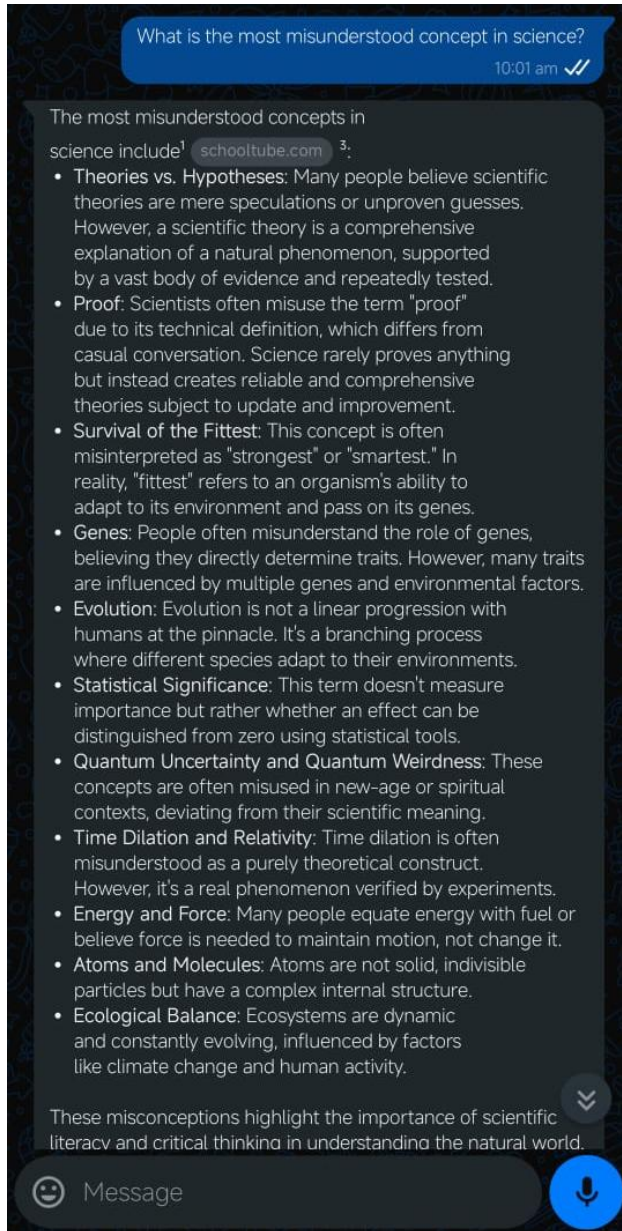
Intelligence encompasses various aspects, including:

1. Cognitive abilities (memory, attention, problem-solving)
2. Emotional intelligence (self-awareness, empathy, social skills)
3. Practical intelligence (common sense, adaptability)

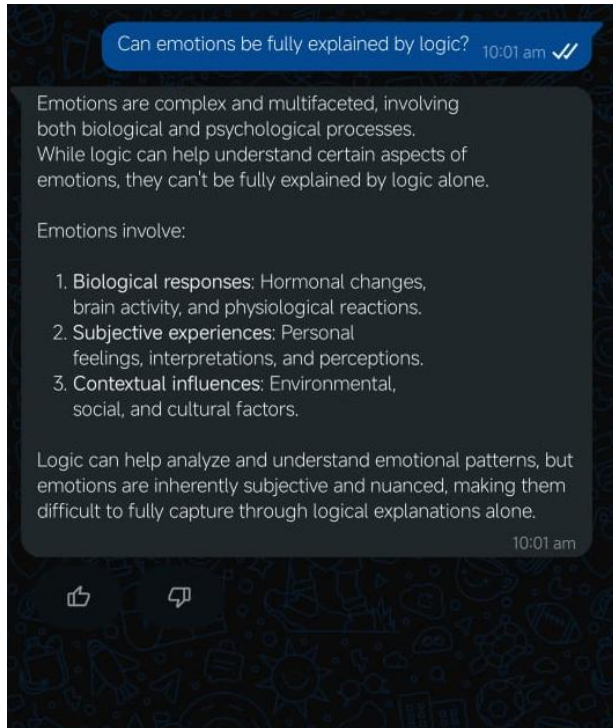
It's a complex and multifaceted trait that can manifest differently in individuals. How do you perceive intelligence? 10:00 am

👍 🗨

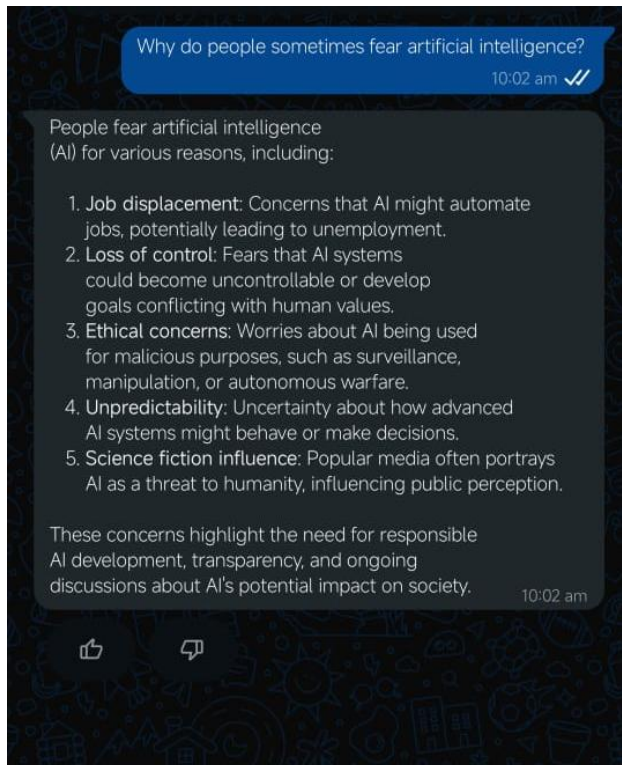
## CONVERSATION 4



## CONVERSATION 5



## CONVERSATION 6



## CONVERSATION 7

What's the difference between knowledge and wisdom? 10:02 am ✓

Knowledge and wisdom are related but distinct concepts:

**Knowledge:**

- Refers to the acquisition of information, facts, and data
- Involves understanding and recalling information
- Can be obtained through learning, experience, and education

**Wisdom:**

- Involves the application of knowledge and experience to make informed decisions and judgments
- Requires insight, discernment, and good judgment
- Often involves considering multiple perspectives, values, and long-term consequences

In essence, knowledge is about knowing what, while wisdom is about knowing how and when to apply that knowledge effectively. Wisdom often comes from experience, reflection, and maturity. 10:02 am

👍 🗨

## CONVERSATION 8

Is privacy still possible in a digital world? 10:03 am ✓

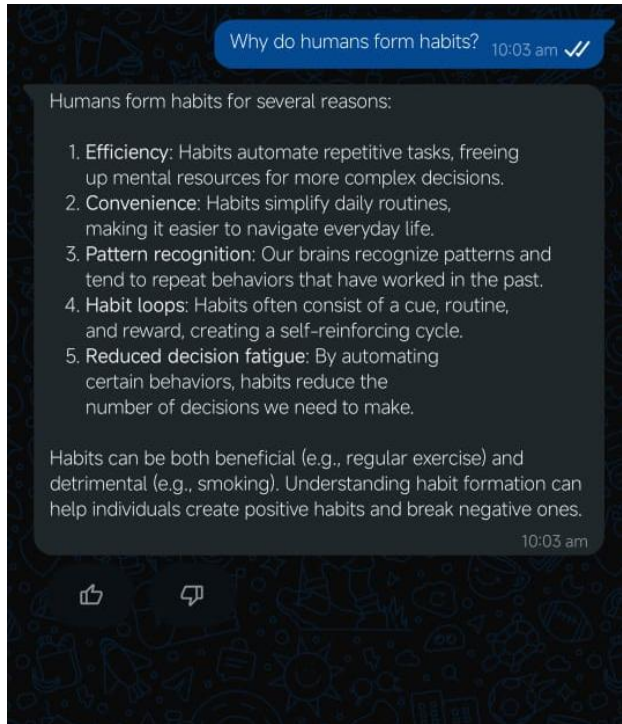
Privacy in a digital world is challenging, but not impossible. With the rise of technology, data collection, and online tracking, protecting personal information requires awareness, effort, and strategies like:

1. Using encryption and secure communication tools.
2. Being cautious with online sharing and data permissions.
3. Utilizing privacy-focused browsers and services.
4. Understanding and managing digital footprints.

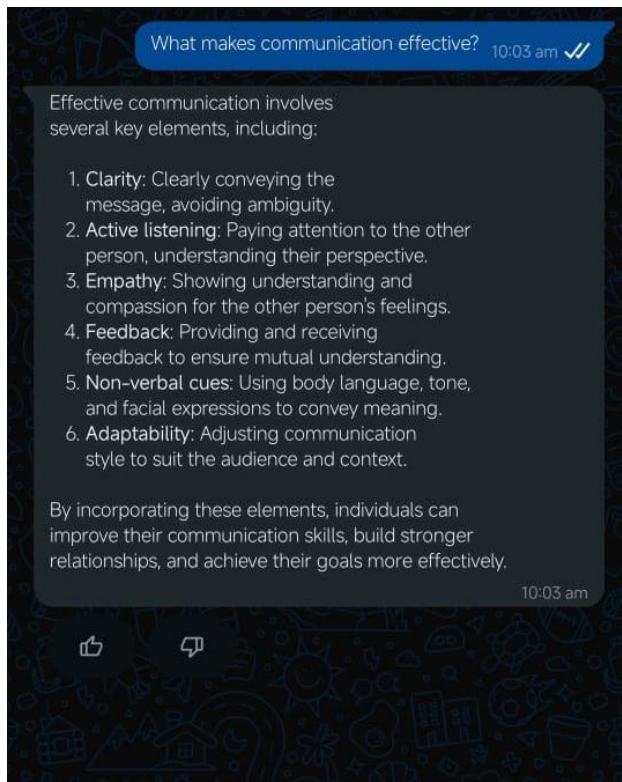
While complete anonymity might be difficult, individuals can take steps to protect their privacy and maintain control over their personal information. 10:03 am

👍 🗨

## CONVERSATION 9



## CONVERSATION 10



## 4.5.2 ANALYSIS USING THE GRICE'S COOPERATIVE PRINCIPLE

### CONVERSATION 1

#### **Maxim of Quantity**

Instead of just giving a short fact, the chatbot offers a rich cultural fact about Nigeria, expanding with details (ethnic groups, languages, history, creativity).

#### **Maxim of Quality**

The chatbot shares fact that is verifiable and alongs with real data about Nigeria's diversity, reliance on factual, credible information.

#### **Maxim of Relation**

The chatbot aligns its answer with the users query about "something interesting learned recently", but reframed it : First, clarifies its own limitation(I don't learn like human's do), then shifts to sharing an "interesting fact".

#### **Maxim of Manner**

The chatbot uses simple, clear sentences, and organizes the fact logically: diversity-history-creativity.

### CONVERSATION 2

#### **Maxim Of Quantity**

The chatbot gives a detailed, structured response, listing both the advantages and disadvantages, it avoids giving too little or too much relevant detail.

#### **Maxim Of Quality**

The chatbot provides a balanced,factual response about the positive and negative impacts of technology.

### **Maxim Of Relation**

The chatbot response is directly related to the user's question, the question remains on topic without digressing.

### **Maxim Of Manner**

The chatbot response is structured clearly: first positive, then negatives, and finally a conclusion, with the use of bullet points that enhances readability.

## **CONVERSATION 3**

### **Maxim Of Quantity**

The chatbot provides a comprehensive yet structured definition of intelligence. It lists both general abilities (learning, problem solving) and specific dimensions (cognitive, emotional, practical). This satisfies the maxim because the information is neither too short or excessively long.

### **Maxim Of Quality**

The chatbot response avoids false or misleading statements. It gives widely accepted perspectives on intelligence (cognitive ability, emotional intelligence, adaptability). This aligns with psychological and educational literature showing commitment to truth.

### **Maxim Of Relation**

The chatbot response aligns directly to the topic, answering the user's question without digressing. Every point made connects to the question.

### **Maxim Of Manner**

The answer is structured into lists(numbered and bulleted), making it easy to read. Concepts like "cognitive abilities" and "practical intelligence" are explained with examples, reducing ambiguity.

## CONVERSATION 4

### **Maxim Of Quantity**

The chatbot provides a list of commonly misunderstood scientific concepts(Theories vs Hypothesis, Proof, Survival of the Fittest, Genes, Evolution e.t.c).

### **Maxim Of Quality**

The chatbot response is factually accurate (e.g, theory=gues, survival of the fittest=strongest, evolution=Linear), it avoids speculation and sticks to well-established scientific explanations.

### **Maxim Of Relation**

The chatbot response directly answers the question, instead of selecting one concepts, it interprets the question broadly and provides a range of examples.

### **Maxim Of Manner**

The response is explained in simple, accessible language (eg "fittest" explained as "ability to adapt"), with the use of bullet points.

## CONVERSATION 5

### **Maxim Of Quantity**

The chatbot provides enough detail without being overly lengthy, it lists three categories of emotions (biological, subjective, contextual) with examples.

### **Maxim Of Quality**

The chatbot acknowledges the limit of logic in explaining emotions "they can't be fully explained by logic alone", this demonstrates intellectual honesty, avoiding over-claiming.

### **Maxim Of Relation**

The chatbot response is directly relevant to the user's question, staying on topic about the relationship between emotions and logic.

### **Maxim Of Manner**

The chatbot uses numbered points and simple phrasing, making the message structured and easy to read, this avoids jargon and ambiguity ensuring clarity.

## **CONVERSATION 6**

### **Maxim Of Quantity**

The chatbot provides five clear, well-elaborated reasons why people fear artificial intelligence, it gives neither too little or too much information.

### **Maxim Of Quality**

The chatbot response is factual and aligns with widely recognized public concerns(job loss, ethical misuse, unpredictability etc), no exaggeration or misinformation is included.

### **Maxim Of Relation**

The chatbot response directly addresses the user's question "why do people sometimes fear artificial intelligence?". Each listed point is relevant to the central topic of AI fear.

### **Maxim Of Manner**

The chatbot response is structured with numbered points, concise explanations, and straightforward language, it ends with a summarizing remark stressing AI development.

## **CONVERSATION 7**

### **Maxim Of Quantity**

The chatbot gives enough detail without being overly brief or excessively long. It lists bullet points for knowledge and wisdom and then summarizes with a clear distinction.

### **Maxim Of Quality**

The chatbot response is factually correct: knowledge=acquisition of information, Wisdom=application of knowledge with judgment. No false or misleading content is presented.

### **Maxim Of Relation**

The chatbot stays directly on topic, answering the exact question: what's the difference between knowledge and wisdom.

### **Maxim Of Manner**

The response is structured into two sections(knowledge and wisdom) with bullet points, it uses simple, straightforward language.

## **CONVERSATION 8**

### **Maxim Of Quantity**

The chatbot does not simply answer "yes" or "no", instead it explains that privacy is challenging but not impossible. The chatbot provides four practical strategies to enhance privacy.

### **Maxim Of Quality**

The chatbot acknowledges limitations:"complete anonymity might be difficult". It offers realistic evidence based strategies (encryption, cautious sharing, privacy-focused browsers, digital footprint management).

### **Maxim Of Relation**

The chatbot response directly addresses the question:"is privacy still possible in a digital world?", no off-topic content, everything links back to digital privacy.

### **Maxim Of Manner**

The chatbot response is broken into: introduction, bullet pointed strategies, and conclusion, this clear organization of the response avoids ambiguity.

## CONVERSATION 9

### **Maxim Of Quantity**

The chatbot provides five distinct reasons why humans form habits (efficiency, convenience, pattern recognition, habit loops, reduced decision fatigue). It also adds a conclusion noting that habit can be beneficial or detrimental.

### **Maxim Of Quality**

The reasons listed align with psychological and behavioral science research. The statement that habit can be both beneficial and detrimental is factually correct.

### **Maxim Of Relation**

The entire response is focused on the user's question "why do humans form habits", no digressions or relevant details are included.

### **Maxim Of Manner**

The chatbot uses numbered points to organize ideas clearly. It avoids jargon and explains in simple, accessible terms.

## CONVERSATION 10

### **Maxim Of Quantity**

The chatbot gives enough information (six key elements) without being too brief or excessively detailed.

### **Maxim Of Quality**

The chatbot response is truthful and informative, no misleading or false information is given.

### **Maxim Of Relation**

The chatbot response is directly relevant to the user's question, no digression or unrelated content.

## **Maxim Of Manner**

The chatbot response is clear, organized, and orderly: numbered list with short explanation.

### **4.5.3 ANALYSIS USING THE SOCIAL PRESENCE THEORY**

#### **CONVERSATION 1**

##### **1. Transparency and self-disclosure**

The chatbot acknowledges its limitation (" I don't learn like humans do"), this humanizes the chatbot by clarifying its identity, building honesty and trust.

##### **2. Conversational Tone**

The chatbot use of phrases like " Did you know.... "mimics natural human conversation, this makes the chatbot feel more like a conversational partner than a machine.

##### **3. Invitation To Dialogue**

Ends with a follow-up question(" want to explore more about Nigerain culture or history? "), which encourages interaction, giving the user agency to continue or shift the conversation.

This conversation adheres to The Social Presence Theory.

#### **CONVERSATION 2**

##### **1. Personal Engagement**

The chatbot doesn't just give facts: it ends with "what are your thoughts on this? ", this invites dialogue, signaling attentiveness and encouraging user participation.

##### **2. Structural Behavior**

The structured use of lists and a summarizing conclusion makes the chatbot's response approachable -mimicking how a teacher or peer would explain in a conversation.

### **3. Balanced Tone**

The neutral yet empathetic tone make the chatbot seem thoughtful, not biased, which fosters a sense of fairness and credibility.

## **CONVERSATION 3**

### **1. Immediacy and Warmth**

At the end, the chatbot asks "how do you perceive intelligence?". This moves from a one-way definition to an interactive dialogue, increasing user engagement and presence.

### **2. Personalization**

The use of phrase like "it's a complex and multifaceted traits" and "can manifest differently in individuals" acknowledges human diversity, showing sensitivity and respect for individuality. This creates a stronger sense of empathy.

### **3. Cognitive Presence**

The chatbot not only provides facts but invites reflection, encouraging the user to think critically about their own perception. This transforms the exchange into a collaborative knowledge-building experience.

## **CONVERSATION 4**

### **1. Immediacy**

The chatbot responds directly and thoroughly, showing attentiveness to the user's question.

### **2. Clarity and Organization**

The chatbot response is presented in a structured bullet list, enhancing readability, this creates a sense of competence and professionalism which increases trust.

### **3. Tone**

The chatbot tone is objective and academic avoiding casual language, this reinforces the chatbot as a "teacher/expert" not a "friend/companion".

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 5

### 1. Social Presence

The structured and respectful tone projects competence and reliability but the absence of personalization makes it feel more like a mini-lecture than a human conversation.

### 2. Cognitive Presence

The chatbot provides an intellectual explanation with structured categories, this builds cognitive trust- the user sees the chatbot as knowledgeable.

### 3. Emotional Presence

The chatbot presence is neutral and professional, not emotionally warm. No empathetic phrases like "I understand emotions can be confusing"

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 6

### 1. Emotional Presence

The tone is neutral, professional, and objective. It does not display empathy, personalization, or relational cues, this limits the sense of warmth, so the user feels informed but not emotionally reassured.

### 2. Cognitive Presence

The chatbot demonstrates strong cognitive presence by giving a logical, structured, and well-reasoned answer, which shows "knowledge authority".

### 3. Immediacy and Engagement

The use of clear listing and final concluding remark shows attentiveness to the user's question.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 7

### 1. Clarity and Empathy

By breaking concepts into bullet points, the chatbot reduces cognitive load and makes the user feel guided, as though a teacher were explaining.

### 2. Personalization

Although not highly personalized, the structured explanation with examples of human-like reasoning eg "wisdom often comes from experience, reflection, and maturity" makes the answer reliable and human-centered.

### 3. Cognitive Presence

Encourages the user to think deeply about the distinction between knowledge and wisdom rather than just receiving facts.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 8

### 1. Clarity and Reassurance

The balance between realism "anonymity might be difficult" and hope "individuals can take steps" makes the user feel guided not discouraged.

### 2. Immediacy

The chatbot responds promptly with a direct, reassuring opening: "privacy in a digital world is challenging, but not impossible", this shows attentiveness.

### 3. Cognitive Presence

The chatbot engages the user intellectually by offering actionable strategies, stimulating reflection about online behavior.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 9

### 1. Cognitive Presence

By explaining habit loops and decision fatigue, it stimulates deeper thinking, encouraging the user to reflect on their own behaviors.

### 2. Immediacy

The chatbot begins directly with "humans form habits for several reasons", showing attentiveness to the user's question.

### 3. Reliability

It explains habits in a way that relates to daily life (eg "regular exercise" Vs "smoking"), making the answer relatable.

This conversation does not adhere to the Social Presence Theory.

## CONVERSATION 10

### 1. Social Cues

The structure is professional and neutral, without emotional or personal expressions eg "that's a great question!"

### 2. Clarity and Professionalism

The ordered and systematic explanation creates a sense of expert authority, making the presence more informational than relational.

### 3. Immediacy of Response

The chatbot responds directly and promptly to the user's question, this shows attentiveness and makes the user feel heard.

This conversation does not adhere to the Social Presence Theory.

#### **4.5.4 COMMUNICATION STRATEGIES AND EFFECT ON USER**

##### **CONVERSATION 1**

###### **1. Clarification Strategy**

The chatbot acknowledges differences between human and AI learning.

###### **EFFECT ON THE USER**

The effect of this strategy on the user is that it manages expectations and builds transparency.

###### **2. Fact-Sharing Strategy**

The chatbot uses this strategy to provide a surprising, knowledge rich cultural fact.

###### **EFFECT ON THE USER**

The effect of this strategy on the user is that it sparks curiosity and positions the chatbot as informative.

###### **3. Interactive Questioning Strategy**

The chatbot responses closes with a question to keep the dialogue open.

###### **EFFECT ON THE USER**

The effect of this strategy is that it promotes continued conversation and prevents dead-end exchanges.

##### **CONVERSATION 2**

###### **1. Summarization Strategy**

The chatbot ending with "ultimately, the impact.....depends on how its used and managed", shows its summarization power.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it provides closure while leaving room for further exploration, reducing confusion.

### **2. Interactive Strategy**

In the chatbot response, the sentence "what are your thoughts on this?" opens the floor for dialogue.

## **EFFECT ON THE USER**

The effect of this strategy is that it encourages critical thinking and makes the user feel valued as a conversational partner.

### **3. Balanced Framing Strategy**

The chatbot gives both positive and negative perspectives as response to the user's question.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds credibility by showing objectivity, making the user more likely to trust the answer.

## **CONVERSATION 3**

### **1. Clarification Strategy**

The chatbot provides examples (e.g., "memory, attention, empathy, social skills") to ensure abstract concepts are easier to grasp.

## **EFFECT ON THE USER**

The effect of this strategy is that it provides clarity to the user who genuinely wants to expand its knowledge.

### **2. Engagement Strategy**

The chatbot ends with a reflective question, turning the conversation into a two-way interaction.

## **EFFECT ON THE USER**

The effect of this strategy is that it ensures that the user is totally engrossed in the conversation and avoids lacks of engagement.

### **3. Elaboration Strategy**

The chatbot goes beyond a short dictionary definition to include cognitive, emotional, and practical intelligence.

## **EFFECT ON THE USER**

The effect is that it ensures the concept is fully explained to avoid confusion.

## **CONVERSATION 4**

### **1. Neutral-Objective Tone Strategy**

In the chatbot response there is no bias, emotional language or personalization.

## **EFFECT ON THE USER**

The effect on the user is that it builds confidence in accuracy but may feel odd or impersonal.

### **2. Enumerative Strategy**

The chatbot list concepts systematically with bullet points.

## **EFFECT ON THE USER**

The effect is that it helps the user process complex information step by step, increasing comprehension.

### **3. Explanatory Strategy**

The chatbot defines and clarifies each concept to avoid ambiguity.

## **EFFECT ON THE USER**

The effect on the user is that it reduces misconceptions, boosting cognitive trust in the chatbot reliability.

## **CONVERSATION 5**

### **1. Concessive Strategy**

The chatbot balances logic and limitation "while logic can help..... emotions can't be fully explained by logic alone"

## **EFFECT ON THE USER**

The effect of this strategy is that it shows humility and honesty, which increases the user's trust in the chatbot's reliability.

### **2. Knowledge Framing Strategy**

The chatbot frames response as a reasoned explanation, giving authority.

## **EFFECT ON THE USER**

The effect of this strategy is that it positions chatbot as an expert teacher, boosting confidence in the information.

### **3. Explanatory Strategy**

Each point in the chatbot response have a short explanation with examples.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it builds deeper understanding, reducing ambiguity.

## **CONVERSATION 6**

### **1. Neutral Objective Tone**

This strategy was used by the chatbot to avoid emotional or biased expressions.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds credibility and objectivity but may reduce feelings of empathy and personal connection.

### **2. Summarizing/Framing Strategy**

The chatbot response ends with a conclusion stressing the need for responsible AI development.

## **EFFECT ON THE USER**

The effect of this strategy is that it leaves the user with a sense of closure and direction "responsible AI development is needed", reinforcing the chatbot's authority.

### **3. Authority-Building Strategy**

This strategy frames the response with academic-like clarity positioning itself as an expert.

## **EFFECT ON THE USER**

The effect of this strategy is that it the user perceives the chatbot as an expert source of knowledge, enhancing cognitive trust, though potentially at the expense of emotional bonding.

## **CONVERSATION 7**

### **1. Contrast Strategy**

The chatbot makes use of this strategy in distinguishing between the two concepts(knowledge vs Wisdom).

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances clarity by showing difference side by side, reducing ambiguity.

### **2. Neutral and Professional Tone**

The tone of the chatbot response was objective, informative, and polite.

## **EFFECT ON THE USER**

The effect of this strategy is that it creates a sense of authority and reliability, making the user trust the explanation.

### **3. Definition and Explanation Strategy**

The chatbot defines each concept (knowledge and Wisdom), and adds practical explanation eg "Wisdom often involves considering multiple perspectives".

## **EFFECT ON THE USER**

The effect of this strategy is that it builds deeper understanding, making abstract ideas easier to grasp.

## **CONVERSATION 8**

### **1. Technical and Practical Language**

The chatbot uses terms like "encryption", "digital footprint", "privacy-focused browsers.

## **EFFECT ON THE USER**

The effect of this strategy is that it builds authority and credibility, making the chatbot appear knowledgeable.

### **2. Summarization/Conclusion Strategy**

The chatbot response ends with a takeaway:"individuals can take steps to protect their privacy and maintain control.... ".

## **EFFECT ON THE USER**

The effect of this strategy is that it leaves the user with a clear, memorable message.

### **3. Structured Listing Strategy**

The chatbot presents the four strategies in a structured numbered list.

## **EFFECT ON THE USER**

The effect of this strategy on the user is that it enhances clarity, easy recall, and makes the information user-friendly.

## **CONVERSATION 9**

### **1. Structured Listing Strategy**

The chatbot presents five clear reasons in list format.

## **EFFECT ON THE USER**

The effect of this strategy is that it enhances readability and helps the user process complex ideas step by step.

### **2. Contrast Strategy**

The chatbot differentiates between beneficial (exercise) and detrimental (smoking) habits.

## **EFFECT ON THE USER**

The effect of this strategy is that it provides a balanced, realistic perspective that feels complete.

### **3. Summarization Strategy**

The chatbot response ends with an actionable message: "understanding habit formation can help individuals create positive habits and break negative ones".

## **CONVERSATION 10**

### **1. Enumerative Strategies**

The chatbot presented the response using a numbered list for clarity.

## **EFFECT ON THE USER**

The effect of this strategy is that it is easy to follow; the answer appear well structured and reliable.

## **2. Explanatory Strategy**

The chatbot gives short explanation for each of the listed element.

### **EFFECT ON THE USER**

The effect of this strategy is that it enhances comprehension; thereby making the user feel informed and educated.

### **Neutral/Professional Tone**

The chatbot response uses an objective and fact-based delivery tone.

### **EFFECT ON THE USER**

The effect of this strategy is that it builds trust and authority but reduces emotional connection.

## **4.6 DISCUSSION OF FINDINGS**

This study set out to analyze the communication strategies employed by AI-driven chatbots and to examine how these strategies affect user interactions, drawing on frameworks such as Grice's Cooperative Principle and Social Presence Theory. The findings reveal that while chatbots are artificial systems, their design and interaction patterns significantly shape how users perceive, engage, and respond to them.

First, the analysis demonstrated that most chatbots consistently adhere to Grice's maxims of Quantity, Quality, Relation, and Manner. Their responses are typically relevant, concise, logically structured, and truth-like within the scope of human communication norms. This adherence creates the impression of coherence and reliability, which enhances user trust and satisfaction. However, occasional lapses such as over-generalization or formulaic repetition highlight the limitations of programmed interaction.

Second, through the lens of Social Presence Theory, chatbots were found to create varying degrees of interpersonal warmth, immediacy, and perceived companionship. By using personalization (addressing users by name), inclusive pronouns ("we", "us"), and empathetic tones, chatbots simulate human-like presence. This increases user comfort and engagement, making conversations feel relational rather than transactional. Nevertheless, the emotional

presence projected is often limited, as deeper empathy and genuine human affection are beyond the chatbot's capacity.

Third, several distinct communication strategies were identified: personalization, empathy framing, positive reframing of negative experiences, enumerative structuring, explanatory clarity, and immediacy of response. These strategies were shown to have clear effects on users:

**Cognitive effects:** improved comprehension, clarity, and trust in information.

**Emotional effects:** feelings of recognition, reduced loneliness, and encouragement.

**Relational effects:** increased perception of companionship and human-likeness.

Finally, the findings highlight a double-edged outcome: while these strategies foster positive user experience increasing trust, satisfaction, and engagement- they may also risk emotional over-reliance or blurred boundaries between human and machine. This underscores the need for ethical design considerations in chatbot communication.

In conclusion, the study establishes that chatbot communication strategies are not neutral but actively shape the quality, depth, and outcomes of user interactions. By balancing efficiency with empathy, and accuracy with relational presence, AI-driven chatbots can become not only effective information tools but also meaningful companions in digital communication spaces.

## CHAPTER FIVE

### SUMMARY, CONCLUSION, AND RECOMMENDATION

#### 5.1: SUMMARY

This research set out to examine the communication strategies employed by AI-driven chatbots and their effects on user interactions. The study was motivated by the increasing reliance on conversational AI systems such as ChatGPT, Google Assistant, Meta AI, Gemini, and Replika, which are progressively shaping human-machine communication in both personal and professional contexts. As these systems increasingly mimic human conversational behavior, it has become necessary to critically analyze how they achieve meaningful communication with users, what strategies they employ and how these strategies influence user experience.

The principal aim of the study was to identify, describe, and analyze the communicative techniques adopted by chatbots in their interactions with users, with a particular focus on Grice's Cooperative Principle and the Social Presence Theory as guiding theoretical frameworks. The research was motivated by the need to understand how machines simulate human-like conversation, how effectively they adhere to principles of cooperative communication, and how their ability to project presence and empathy impacts user trust, satisfaction, and balance.

The scope of the study covered selected AI-powered chatbots widely used across different social and informational contexts, with the method of data collection involving a 50 chatbot-user conversations from 5 selected chatbots. The research examined their responses in a variety of interactive situations, including casual chats, emotional support scenarios, and question-answer sessions. The methodological approach was grounded in two main theories;

- i. Grice's Cooperative Principle, which evaluates communication based on four maxims- Quantity, Quality, Relation, and Manner- to determine whether chatbot responses are clear, relevant, informative, and truthful.
- ii. Social Presence Theory, which explores how well chatbots create a sense of warmth, empathy, and human-like interactions, thereby enhancing relational bonds and user engagement.

By applying these frameworks, the study was able to measure not only the technical accuracy of chatbot responses but also the psychological and relational effects they generate in human-AI communication. The methodology further incorporated qualitative interpretation of conversational strategies such as personalization, empathy framing, positive reframing, immediacy of response, and explanatory clarity.

## **5.2 FINDINGS AND CONCLUSION**

### **5.2.1 FINDINGS**

The findings revealed that chatbots generally adhere to the cooperative principle by providing relevant, concise, and clear responses that align with human communicative expectations. However, while they maintain coherence, occasional lapses such as formulaic repetition and overgeneralized statements highlight the limits of machine-driven discourse.

Through the lens of Social Presence Theory, the study found that chatbots project a sense of human-like presence by using personalization (addressing users by name), empathetic responses, and inclusive language. These strategies foster interpersonal warmth and create a perception of companionship, thereby reducing feelings of isolation and enhancing user satisfaction.

The analysis identified several effective communication strategies such as; personalization, empathy framing positive reframing, explanatory clarity, and immediacy of response, the effects of these strategies on users were found to be both cognitive and emotional. Cognitively, they enhanced understanding and trust in the information provided; emotionally, they fostered companionship, reassurance, and satisfaction. However, the study also observed the potential risk of users developing over-reliance on chatbots due to illusion of human-like empathy and companionship.

### **5.2.2 CONCLUSION**

This research has investigated the communication strategies employed by AI-driven chatbots and their effects on user interactions, with particular attention to platforms such as ChatGPT, Meta AI, Google Assistant, Gemini, and Replica. Guided by Grice's Cooperative Principle and the Social Presence Theory, the study sought to evaluate how these conversational systems align

with human communicative norms and the extent to which their strategies shape user experiences cognitively and emotionally.

The findings demonstrate that chatbots are not passive tools of information delivery but active communicators that strategically employ personalization, empathy, immediacy of response, and explanatory clarity to foster meaningful interaction. By generally adhering to the maxims of Grice- Quantity, Quality, Relation, and Manner- chatbots maintain relevance, clarity, and accuracy, thereby enhancing trust and comprehension. At the same time, their deployment of social presence cues, such as relational language and empathetic framing, creates an atmosphere of companionship that goes beyond transactional communication.

From a cognitive perspective, these strategies support users in processing information more effectively, boosting confidence in responses, and improving learning and problem-solving outcomes. From an emotionally perspective, chatbots offer reassurance, reduce loneliness, and provide a sense of sense of being listened to, which deepens user satisfaction. However, this dual role as both information provider and relational companion raises concerns about emotional over-reliance and the blurred boundaries between human and machine interaction.

The conclusion therefore underscores that chatbot communication strategies represent a powerful evolution in human-machine interaction. Their ability to merge efficiency with empathy, accuracy with warmth, and responsiveness with relational presence positions them as indispensable tools in the digital age. Nonetheless, the study highlights the need for responsible design and ethical oversight to balance the benefits of companionship with safeguards against over-dependences.

### **5.3 RECOMMENDATIONS**

Based on the findings of this research, the following recommendations are pivotal to the following individuals;

#### **1. For Developers:**

- Chatbot designers should integrate more advanced personalization features while ensuring ethical safeguards against user manipulation and over-dependence.

- Emotional intelligence modules should be refined to balance empathy with transparency, so that users remain aware they are interacting with AI and not humans.

## **2. For Users:**

- Users should be encouraged to view chatbots as supportive tools rather than replacements for human interaction.
- Awareness programs should emphasize the limitations of AI responses, reminding users to verify sensitive information received from chatbots.

## **3. For Researchers:**

- Future studies should investigate the long term psychological impact of frequent chatbot use, especially among vulnerable groups such as children and the elderly.
- More cross-cultural studies should be employed to explore how communication strategies are perceived in different linguistic and cultural contexts.

By implementing these recommendations, the benefits of chatbot-user interactions can be maximized, while the potential risks are minimized. This will ensure that communication strategies continue to enhance user engagement, trust, and satisfaction in a responsible and sustainable way.

## REFERENCES

Abbass, H. A. (2021). Social integration of artificial intelligence: Functions, automation allocation logic, and human-AI interaction. *Cognitive computation*, 13(5), -1055

<https://doi.org/10.1007/s12559-021-09843-2>

Hintze, A. (2016, November 14). Understanding the four types of artificial intelligence. *The conversation*.

<https://theconversation.com/four-types-of-artificial-intelligence-38364>

McQuail, D.(2010). *McQuail's mass communication theory*(6th ed.) Sage.

McCarthy, J.(2007). What is artificial intelligence? Stanford University.

<http://jmc.stanford.edu/articles.html>

Emerj.(2016). What is artificial intelligence? Emerj Artificial Intelligence Research.

<https://emerj.com/ai-glossary-terms/what-is-artificial-intelligence/>

Abu Shawar, B. A., & Atwell, E.S.(2007). Chatbots: Are they really useful? *Journal for Language Technology and Computational Linguistics*, 22(1), 29-49.

<https://jlcl.org/2007.Heft1/7Shawar.pdf>

Caldarini, G., Jaf, S., & McGarry, K.(2022). A literature survey of recent advances in chatbots. *Information*, 13(1), 41.

<https://doi.org/10.3390/info13010041>

Nuruzzaman, M., & Hussain, O.K.(2018). A survey on chatbot implementation in customer service industry through deep neural networks. In *proceedings of the 2018 IEEE 15th International Conference on e-Business Engineering (ICEBE)* (pp.54-61). IEEE.

<https://doi.org/10.1109/ICEBE.2018.00019>

Radziwill, N.M., & Benton, M.C.(2017). Evaluating quality of chatbots and intelligent conversational agents. arXiv.

<https://arxiv.org/abs/1704.04579>

Adamopoulou, E., & Moussiades, L. (2020). An overview of chatbot technology. In *Artificial Intelligence Applications and Innovations*(pp.373-383). Springer.

[https://doi.org/10.1007/978-3-030-49186-4\\_31](https://doi.org/10.1007/978-3-030-49186-4_31)

Folstad, A., & Brandtzaeg, P.B.(2017). Chatbots and the new world of HCI. *Interactions*, 24(4), 38-42.

<https://doi.org/10.1145/3085558>

Clark, L., Ford, W.R., & Ferreras, I.G.(2019). Reactions to conversations with artificial intelligence: A comparison between human-human online conversations and human-chatbot conversations. *Computers in Human Behavior*, 92,245-250.

<https://doi.org/10.1016/j.chb.2018.11.036>

McTear, M., Callejas, Z., & Grill, D. (2016). *The conversational interface: Talking to smart devices*. Springer.

<https://doi.org/10.1007/978-3-319-32967-3>

Grove, H.P.(1975). Logic and Conversation. In P. Cole & J. L. Morgan(Eds.), *syntax and semantics* (vol.3, pp. 41-58). Academic Press.

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. John Wiley & Sons.