Harmony in Communication: Integrating Sadharanikaran Principles with AI

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Abstract

This paper explores the intersection of artificial intelligence (AI) design, Sadharanikaran communication principles, and various theoretical frameworks to enhance mutual understanding in human-computer interaction. Drawing upon insights from Focus Group Discussions (FGDs) and evaluating the effectiveness of custom instructions and prompt engineering on ChatGPT, this study analyzes the implications of diffusion of innovation theory, human-computer interaction theory, cognitive load theory, emotional design theory, and social learning theory within the context of Sadharanikaran and AI design. By synthesizing these theoretical perspectives and empirical findings, this paper explores scopes for designing AI systems that promote Sahridayata, or mutual understanding among users.

Keywords: AI communication, Sadharanikaran, artificial intelligence, future technology, interconnectedness, digital harmony, ChatGPT, machine learning

Introduction

Modern times are rapidly changing with the advancement in artificial intelligence (AI) technology. However, approaches

in creating an AI model that encourage mutual understanding between humans and computers have not been adequately discussed. Therefore, this article sets on a journey to study Sadharanikanan principles and discusses various theories about how AI systems are designed and developed with the focus on enhancing communication between users.

The diffusion of innovation theory discussed in this paper contributes to the understanding of the adoption process and the outreach of new AI features. Custom instruction for users in ChatGPT is one of the areas of focus in this study. With the understanding of how innovations are created by the communities and how they get traction, AI designers can customize various strategies that allow the community to adopt the innovations seamlessly as a part of their everyday practice. Various research has been conducted to study the adoption of AI, and they have found their importance for small- to medium-sized enterprises (Rawashdeh et al., 2023). This paper also examines how well-informed and clearer prompts and requests trigger artificial intelligence systems to respond optimally while also enhancing and fostering communication and interaction.

Human-computer-interaction theory advocates that the main purpose of AI development is human-centered design: to take the users' requirements and pain points into account (Kurosu, 2016). Digitalization provides excellent opportunities and prospects for entrepreneurs to stand out in the market and grow their businesses (Ghobakhloo & Iranmanesh, 2021; Richter et al., 2017). Therefore, bringing in the general ideas of human-computer interactions is important to help designers create a system that is easy, accessible, and which gives power to people and therefore promotes Sahridayata, i.e., mutual understanding between computers and humans. Likewise, cognitive load theory advocates that the design of AI features impacts users' cognitive processing and task performance that involve human attention and cognitive involvement. Sweller (2011) highlights

that very large amounts of organized information stored in the information store can be processed to generate complex action. By optimizing the cognitive load related to AI-based communications, AI designers can contribute both to improved efficiency and better performance of AI systems by growing the mutual understanding among the users.

Likewise, the emotional design theory emphasizes how emotional responses can affect what we feel and how we behave. Zhou et al. (2020) proposed a systematic process for emotional design, including affective-cognitive needs elicitation, affective-cognitive needs analysis, and affective-cognitive needs fulfillment to support emotional design to advance emotional design. Integrating psychological design fundamentals into AI design or UI (user interface) design enables the production of better interfaces for good relationships and builds emotions and rapport among users (Carroll, 1991). This also helps in creating Sahridayata as mentioned in the Sadharanikaran theory (Adhikary, 2009, 2014a). AI designers also have the potential to implement social learning theory and principles that enable the foundation of communities of practice where communities share experience and help each other out; therefore, people feel as a part of the group and become more involved with others. Bandura et al. (1977) identified that people learn from observing others' behaviors, including their attitudes, beliefs, and emotions, and that this learning is influenced by various factors such as attention, retention, reproduction, motivation, and feedback. This can also be considered a step into design thinking.

The fusion of theoretical frameworks and empirical findings from Focus Group Discussions (FGDs) helps to draw some actionable insights for designing inclusive, empathetic, and effective AI systems to enhance mutual understanding with the users. AI designers may achieve better results by considering Sadhranikaran and existing

theoretical approaches to create empathic, human-like AI systems that will shape and enrich human experiences in the future.

Integrating AI Design with Sadharanikaran Principles

Sadharanikaran principles suggest that authentic relationships cannot be entirely limited and understood by monologues. It also includes emotions, shared experience, and mutual understanding (Adhikari, 2009). The AI design in terms of Sadharanikaran concepts directs two things: not only does the AI need to be able to understand and differentiate words of all kinds, including humor, satire, jokes, and slang, but it also needs to understand various non-verbal expressions. This thought looks at AI as a tool that is not just for data retrieval but also as a companion that will interact empathetically with users.

In the growing domain of AI research in recent times, designing and developing AI systems that are capable of genuine and human-like communication has become one of the main focuses. Alongside the language processing mechanics, researchers are also delving into philosophical principles like Sadharanikaran related to human interactions and communications. Adhikary (2015) argues that Saharidayata is characterized by human communion. Such integration of the AI with Saddharanikaran principles can also be considered a significant departure from traditional approaches, emphasizing mutual understanding and shared experiences in AI interactions.

Interweaving Sadharanikaran principles and thoughts into AI design reflects the change in paradigm—shifting from traditional linguistic processing to something more profound—suiting the needs and complexity of human beings and their interactions with AI. By equipping AI systems with empathy and understanding, simplifying prompts, and leveraging user feedback, scholars and researchers can develop designs to create intelligent AI companions that can have real human interactions. However, the study of emotion not only

includes cognitive aspects but also physiological and expressive ones, as well as subjective experience (Pfeifer, 1988). This outlook gives emphasis on shared experiences and understandings to create more inclusive AI that is capable of human-like and meaningful interactions in an AI ecosystem.

The integration of Sadharanikaran principles into AI design has the prospect of creating a revolutionary human-machine communication. Researchers will be able to overcome the human-machine gap by making AI systems reflect empathy and simplicity by improving the AI design methods. This ensures balance between human and machine, which in turn results in enlarging the scope and quality of communication in the digital age.

Understanding Sadharanikaran Principles

Sadharanikaran, which has deep foundations in Hindu and eastern philosophy, offers an in-depth perspective on communication. At its core, Sadharanikaran suggests that genuine connection is more than just verbal exchange. In addition to that, it also encompasses sharing of emotions, sharing of experiences, and mutual understanding between Saharidayas—the sender and the receiver (Adhikary, 2009). In the context of AI design, integrating Sadharanikaran principles requires AI with the capacity to understand and interpret not only linguistic expressions made by a user but also various emotional variants. This can elevate AI beyond its conventional role as a tool for information retrieval, transforming it into a companion capable of empathetic engagement with its users.

Applying Diffusion of Innovation Theory

The Diffusion of Innovation theory brings some enlightening perspective into how technological tools and innovations spread throughout society. Uzumcu et al. (2023) also identified that individuals with high levels of individual innovativeness are more likely to adapt to and use new applications or technologies than other individuals. When introducing AI to the general public, it

is also necessary to ensure widespread adoption necessitates like technological readiness to make it accessible and user-friendly across diverse demographics around the world (Alsheibani et al., 2018). Looking at AI design with Sadharanikaran principles facilitates designing universal usability, which can be achieved by simplifying user interface (UI), facilitating varying user needs, and ensuring inclusivity (Miraz et al., 2021). By leveraging the principles of the Sadharanikaran and Diffusion of Innovation Theory, AI designers can design their system and interface to resonate with a broader audience, which helps in accelerating the adoption and acceptance of AI technologies. Ward (2013) has also identified that it is important to examine socio-technical factors such as individual and organizational characteristics, which lead to the adoption or rejection of new technologies, and consider these at all stages of the design, implementation, and dissemination process.

Harnessing Prompt Engineering for Sahridayata

Prompt engineering is one of the fundamental aspects of human-computer interaction, which involves communicating with direct, clear, and concise messages to facilitate effective communication with the AI. White et al. (2023) define prompt engineering as a form of programming that can customize the outputs and interactions with a large language model (LLM). This approach is an added advantage as it directly affects the quality of interactions between users and AI. By using straightforward prompts in AI use and by also integrating Sadharanikaran principles, AI systems can convey information more comprehensibly to the user. In addition, by adding emotional cues (Rasa as defined in Sadharanikaran as emotions) into prompts, AI systems can develop deeper connections with users, which will enhance the overall user journey and experience.

The Role of Feedback in AI Evolution

Feedback mechanisms, or Pratikriya, as identified by Sadharanikaran, have important roles in the evolution of AI systems

and design. They enable machines to learn and behave based on user interactions. It helps in the improvement and refinement of AI models and systems (Liu et al., 2024). By continuously addressing and incorporating user feedback, AI models can constantly enhance their conversational abilities. Aronsson et al. (2021) identified different maturity levels that a conversational AI development platform may exhibit in understanding and responding to user inputs. By aligning user preferences and communication patterns, analyzing user behavior, and conducting usability and A/B testing, AI models can improve the performance of AI systems and develop strong connections between humans and AI. This will ultimately enhance the overall user experience (UX) and user journey and help in developing Saharidayata among the machine and humans.

Method of Study

A qualitative approach was used to understand the relationship between AI design, Sadharanikaran principles, and UX by integrating focus group discussions (FGDs) to gather in-depth insights. Two separate FGDs were conducted first, and an additional FGD was conducted after the release of GPT-4. A purposive sampling approach was adopted, combining convenience and criterion sampling. This allowed the researcher to select participants who aligned with the research goals, including individuals from diverse backgrounds and a tech enthusiast group. Convenience sampling made data collection efficient by leveraging participants accessible to researchers in Melbourne, while criterion sampling ensured relevance by including tech enthusiasts based on their studies or work in tech and media. This mixed method effectively balanced diversity, convenience, and specific expertise.

The first FGD focused on testing the effectiveness of custom instructions on ChatGPT to sustain Saharidayata in chatbot-human communication. Eight participants participated in various interactions with ChatGPT, both with and without adding custom

instructions. The participants of the first FGD provided feedback on the response quality and personalization of answers from ChatGPT before and after adding custom instructions. The second FGD explored prompt engineering and its results and overall user experience. Participants of the second FGD were given a set of simplified prompts. This assessed ChatGPT responses and results. Clarity, relevance, and ease of comprehension were some variables of interest for this study. The third FGD was conducted after the release of GPT-4, which had added capabilities and features. The participants of the third FGD engaged in the discussion on various themes, particularly relating to GPT-4o, and explored and created a custom chatbot on LifeLike (an AI-based chatbot application). Likewise, unlike the first two, the third FGD was conducted with a group of tech enthusiasts.

Responses from the focus groups were analyzed by identifying common themes, patterns, and preferences. This approach helped in identifying key insights and metrics regarding the effectiveness of AI design as informed by Sadharanikaran principles. Informed consent was obtained from all research participants. There were eight participants in all three focus group discussions. The participations in the FGDs were voluntary, and all FGDs were carried out online for the convenience of both the researcher and research participants. The FGDs provided valuable insights regarding the adaptation of Sadharanikaran principles, AI design, and user experience. However, the sample size may limit the generalizability of findings to broader populations.

Findings and Discussions

The findings from the FGDs shed light on the effectiveness of custom instructions and prompt engineering in enhancing AI and human interactions and experiences based in the context of subscription-free ChatGPT, powered by both GPT3.5 and GPT4o. The findings resonate with principles of the Sadharanikaran

communication model that emphasizes mutual understanding and commonality in the communication process. In the conducted FGDs, all participants acknowledged the value of custom instructions. Participants found that custom instructions in ChatGPT helped in training the AI to their specific preferences and requirements. This customization in ChatGPT allows users to add custom instructions aligned with the principle of Sahridayata, which suggests mutual understanding and commonality between communicating parties. By providing custom instructions on ChatGPT, users can fulfill their unique needs. It also nurtures Sahridayata and facilitates more meaningful interactions with the GPT model.

Participants also highlighted the importance of prompt engineering. It was found that by clarifying prompts, users can enhance their communication with ChatGPT. It was found that proper encoding of prompt, Abhivyanjana, as highlighted in Sadharanikaran, aids in the communication process between human and AI (Adhikary, 2009). Effective prompts are clear, concise, and easily interpretable by AI (Lin, 2024). This optimizes the encoding process and enhances the quality of communication in general. Likewise, the findings also found that the role of custom instructions and prompt engineering helps in minimizing doshas and communication barriers and maximizing the accessibility of AI systems. Participants were satisfied with the personalized responses generated by ChatGPT when custom instructions were added. This idea of Sandarva, which emphasizes the contextual relevance and situational appropriateness of communication, is also rooted in the Sadharanikaran model of communication (Adhikary, 2009). Integrating Sadharanikaran principles into AI suggests going beyond keyword recognition to build systems that get the deeper context (Sandarva) and emotional core (Rasa). Sandarva provides contexts that include cultural norms, social cues, personal history, or any external factors influencing how a message is interpreted. Likewise, rasa is defined in the

Sadharanikaran as the emotional layer that adds depth to a message like joy, sorrow, curiosity, or empathy.

To make AI truly empathetic and engaging, it must understand more than words; it must interpret by blending Sandarva and Rasa—context, emotions, cultural cues, and nuances. (Shank et al., 2019) In their study, they also found that participants reported personal encounters with minded AI, and over half of the research participants reported experiencing emotions in these interactions.

This could mean training models on datasets rich in diverse, context-specific interactions to teach AI when empathy, humor, or even silence is appropriate. Plus, adding custom instructions would let AI evolve with user feedback, building up a memory that makes each interaction feel more personal over time (Rai, 2021). By embedding Sadharanikaran, AI could shift from a simple tool to a genuine conversational partner, creating interactions that truly connect with users emotionally and culturally.

Participants found that by providing specific context and preferences in custom instructions, ChatGPT can deliver responses that further meet users' needs and desires. It was also found that it provides a stronger sense of connection and engagement. In addition, participants found that well-written prompts helped them in having clear and effective communication with the chatbot. Well-written prompts resulted in more accurate and relevant responses. This also aligns with the concept of Rasaswadana (decoding as described in Sadharanikaran), emphasizing the decoding process of messages in the communication process (Adhikary, 2009). By simplifying prompts and giving clear directions, prompt engineering helps in the effectiveness of decoding that accurately reflects the meaning of the user's input. In addition to that, it was found that GPT-4 was preferred over GPT-3.5, particularly because of its human-like, fast response time and its ability to talk. Participants also discussed LikeLife, an AI chatbot application, and created custom bots on Lifelike, which

also had abilities of voice cloning. Participants found that engaging with an AI with voice prompts and conversation is more effective and efficient than chatting with an AI. The findings from the FGDs regarding the relationship between AI design principles, such as custom instructions and prompt engineering, and the foundational principles of Sadharanikaran can be adapted by AI designers and developers to design inclusive, accessible, and user-centric communication experiences.

This paper argues that the integration of Sadharanikaran principles with human-centric design principles in the design and development of an AI model helps in creating a symbiotic relationship between machines and humans. Sadharanikaran emphasizes mutual understanding (Sahridayata) between communicators (Adhikary, 2009). Ideas from this principle derive an understanding that if adapted properly, AI systems may not only execute tasks but also engage with users in meaningful, human-like interactions (Horvatic et al., 2021). Integrating Sadharanikaran principles into AI design also involves developing systems emotional intelligence and sensitivity. This will help AI to interact with users on a deeper level. Elements of emotional connection, Rasa, as identified by Sadharanikaran, can help AI systems to better understand user preferences and to respond empathetically to the user's needs. This will also help AI to establish strong connections with users. This empathetic response is very important for enhancing user trust and loyalty.

Nasution et al. (2021) designed a web application adopting principles of design thinking. It is evident that the user-centric design principles and design thinking emphasize placing users at the center of the design process by prioritizing their needs, preferences, and experiences. When integrated with the principles of Sadharanikaran, this approach ensures that AI systems are designed and developed with an in-depth understanding of user behavior and communication patterns. Jimmerman et al. (2020) found that AI and UX are often

observed separately. However, AI designers must empathize with users, then define their needs, ideate creative solutions, prototype designs, and iterate based on user feedback to create AI systems that can fulfill diverse needs effectively. By encouraging Sahridayata between human and AI, integrating Sadharanikaran principles into AI design will help in promoting inclusivity and cultural sensitivity. This approach minimizes linguistic and cultural doshas (noises and barriers in communication as identified by Sadharanikaran), which will enable an AI model to communicate and interact in a natural way. The findings of this study suggest that the convergence of AI, Sadharanikaran, and user-centric design principles guides the way for more empathetic, inclusive, and human-like AI experiences.

As AI continues to evolve, understanding the factors that may influence its adoption is also crucial. The theory of diffusion of innovations suggests that the adoption of innovations follows a predictable pattern. It is characterized by the stages of knowledge, persuasion, decision, implementation, and confirmation (Bird, 1956). The diffusion process begins with the dissemination of existence and awareness about AI technologies and their uses and benefits. This requires raising awareness among individuals of the society about the uses of AI and its various applications, like healthcare, finance, education, entertainment, etc. Effective communication strategies, educational campaigns, workshops, and demonstrations may play a vital role in disseminating information for a better understanding of AI and its uses among the adopters. The Diffusion of Innovation theory also discusses the importance of effective communication for the spread of innovations. Likewise, in Sadharanikaran, effective communication is not just the flow of Sandesha (information or awareness) but also about achieving mutual understanding and resonance between parties (Adhikary, 2009). This paper recognized that the understanding of Sadharanikaran principles will help in developing efficient frameworks for the adoption and diffusion of AI

technologies to enhance the effectiveness and sustainability of AI. This will also promote mutual understanding and shared experiences among AI and humans. By integrating Sadharanikaran principles with AI adoption, organizations and communities can create deeper connections and collaboration, which will result in inclusive and human-centric AI ecosystems.

This paper argues that AI systems that adopt Sadharanikaran principles should prioritize user-centric design, empathy, and inclusivity. It is evident that human needs, values, and perspectives are crucial to the design, development, and deployment of AI models and technologies. This paper finds that Sadharanikaran principles should be adopted into AI during the design and development of AI models to prioritize user experience and engagement. AI applications can deliver more personalized and relevant experiences by incorporating empathy and understanding of users' needs, preferences, and cultural backgrounds (Stige et al., 2023).

In addition, AI systems can leverage Sadharanikaran principles to enhance overall communication with their stakeholders. By promoting transparency, openness, and inclusivity, AI can build trustworthy and credible decisions (Larsson, 2020). For instance, involving end-users, industry experts, and community representatives, along with different levels of users, in the co-design and co-development of AI models can ensure diverse perspectives, which will lead to more inclusive and equitable outcomes. Moreover, AI technologies can also serve in promoting Sahridayata in communication processes by facilitating language translations and context-aware interactions. AI models can overcome linguistic and cultural barriers, enabling meaningful exchanges and interactions with users from different backgrounds and communities. They require a degree of awareness and background knowledge (Sereda, 2020). This paper finds that by adopting Sadharanikaran, AI technologies can contribute to building more harmonious and interconnected communities.

Sadharanikaran Principles and AI-driven Communication

I would like to argue again that integrating Sadharanikaran principles with AI can enhance mutual understanding, empathy, and inclusivity in human-AI interactions. As discussed earlier, this leads to more meaningful and harmonious exchanges (Adhikary, 2014a, 2014b). Sadharanikaran emphasizes the importance of Sahridayata, or mutual understanding, in the communication process. It highlights the need for empathy, compassion, and shared experiences to develop deeper connections and relationships between people. Shaw (2009) also found that a successful Sadharanikaran leads towards universalization. In the scope of AI-driven communication, the principles of Sadharanikaran can guide the design and development of AI models and systems by encouraging universality, user-centricity, transparency, and inclusivity. Pelau et al. (2021) have also found that empathy and understanding of users' needs, their preferences, and cultural contexts will help AI in facilitating in a more authentic and engaging fashion. This will help in making users feel valued, respected, and understood. By integrating natural language processing (NLP) algorithms with sentiment analysis and affective computing techniques, AI chatbots can recognize and respond to users' emotions. This interaction will help in developing deeper connections and rapport (Rajput, 2020). AI technologies can also help in promoting Sahridayata by facilitating cross-cultural understanding and collaboration. Language translation, cultural adaptation, and context-aware interactions can help AI-driven communication tools to bridge linguistic and cultural barriers.

Addressing Communication Challenges with AI-driven Sadharanikaran Principles

Incorporating Sadharanikaran principles into AI-driven communication processes can address various challenges and limitations encountered in traditional methods. Among different challenges, one challenge in communication is misinterpretation

or misunderstanding or lack of symbolic logic. AI-driven communication platforms can address these issues by using NLP algorithms and models to accurately interpret and translate messages. It was evident from FGDs that AI technologies can facilitate more personalized communication experiences with prompt engineering and custom instructions. Personalized content mechanisms will help AI-driven communication platforms to optimize user experience and user journey. Similarly, another challenge in communication is the need for inclusive and accessible communication channels that address diverse users (Avellan, 2020).

AI models can also offer assistive features like text-to-speech (TTS) capabilities to make communication more accessible to individuals with different abilities (Morris, 2020). AI-driven communication tools can address this challenge by offering multiple options, such as text, graphics, and audio-visual inputs. Participants of the third FGD found that GPT-4 is more likeable because of the different multiple inputs it offers. This will help in accommodating users with different communication preferences and abilities.

Conclusion

This paper has explored the intersection of Artificial Intelligence (AI) development and Sadharanikaran principles. Through a comprehensive analysis of various theories, including Design Thinking, Diffusion of Innovation, and the Sadharanikaran model, along with empirical findings from focus group discussions (FGDs), it can be agreed that integrating Sadharanikaran principles into AI design and development processes can be beneficial. The FGDs conducted for this research revealed that participants found that adding custom instructions to ChatGPT and prompt engineering to be highly effective in enhancing AI-human interactions.

It is found that AI can understand and respond accurately to interactions by adapting mechanisms to compute both situational context (Sandarva) and emotional tone (Rasa). This could be

achieved by training models on diverse, context-specific datasets and utilizing algorithms capable of recognizing subtle cues like phrasing, sentiment, and cultural context (Picard, 1997). Adding Sandarva and Rasa in prompts or interactions using custom instruction layers allows AI to adjust its responses based on user feedback, building conversational memory that refines its sensitivity to users over time. With these enhancements, participants of the FGDs found that AI interactions not only improved in accuracy but also resonated more deeply with users, creating richer, more meaningful exchanges.

The theoretical frameworks explored in this paper share the importance of user-centric design and the diffusion of innovation in AI design. This paper concludes that a user-centric, co-design approach and the adoption of Sadharanikaran, innovative design methodologies, such as Design Thinking, will help AI designers develop more accessible and user-friendly AI systems. By prioritizing user-centric design principles and encouraging meaningful communication between humans and AI models, developers can reduce the risk of digital divides and enhance the overall user experience. In summary, the adaptation of Sadharanikaran principles in AI design and development has great potential in creating superhuman-like AI systems that are capable of mutual understanding and empathizing. Such superhuman-like AI models may be dominant to humankind, but the understanding of Sadharanikaran principles can also help in creating harmonious coexistence between humans and AI.

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