

IDEA GENERATION: COMPARING CHATGPT VS. HUMANS FOR HEALTHCARE SERVICES

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ABSTRACT

Idea generation is arguably one of the most important skills for employees in any industry for the development of new products and services. The need is even greater within healthcare for enhancing patient care. Artificial Intelligence (AI) provides an important new tool to aid humans in exploring the creation of positive healthcare outcomes. This study aims to compare the effectiveness of ChatGPT, an AI-powered language model, with college students from varying disciplines in generating innovative ideas for new products or services appealing to healthcare providers. The research seeks to answer whether AI can rival human creativity within this specific domain.

LITERATURE REVIEW

In recent years, AI has grown increasingly popular in healthcare and other domains. Healthcare has seen positive outcomes for using AI in areas such as drug development (Mak & Pichika, 2019), radiology (Hosny et al, 2018), pathology (Chang et al, 2018), and, increasingly, even aiding clinical diagnostics (Dias & Torkamani, 2019). In other industries, AI is being used as a powerful tool to generate ideas and improve outcomes for business (Garbuio & Lin, 2021). However, the research appears to be embryonic in the application of AI to healthcare outcomes where the need for continuous improvement is paramount and the ability to generate innovative ideas holds significant value.

AI holds potential for today's healthcare providers who are constantly seeking solutions that improve patient care, streamline operations, and enhance the overall healthcare experience. Large language models like ChatGPT have gained considerable attention for its potential to assist and augment human creativity (Garbuio & Lin, 2021). In the context of idea generation, AI systems like ChatGPT can process vast amounts of information, identify patterns, and generate novel concepts. However, the question remains, can AI truly compete with human ideation in fields like healthcare where human insight and empathy are crucial?

METHODOLOGY

For this study, participants consisted of three distinct groups: graduate students in a physician assistant program, undergraduate students majoring in information systems, and undergraduate students majoring in computer science.

Additionally, ChatGPT, an AI-powered language model, participated as the AI representative.

Idea Generation

All participants joined a webinar and instructed that they would be participating in a game consisting of three rounds to develop innovative solutions to improve healthcare outcomes. In round 1, participants were grouped according to discipline and presented with the problem statement "Develop a new product or service that would significantly benefit healthcare providers". In round 2, participants were assigned to students from other disciplines and presented with the problem statement "Develop a new product or

service that would significantly improve patient care”. In round 3, participants were asked to work alone and presented with the problem statement "Develop a new product or service that would significantly enhance the overall healthcare experience". ChatGPT was assigned to its own group in all three rounds. Participants were not informed that ChatGPT was a group involved with the game.

Individual and group leaderboards tracked the performance of participants after each round. To maintain consistency in the experimental conditions, all participants were given a predetermined amount of time in each round to generate ideas. This time limit was carefully selected to provide an equal opportunity for both human and AI participants to generate ideas.

Measurements

An expert panel comprising professionals from the healthcare industry assessed and rated the generated ideas according to a pre-defined rubric with dimensions for innovation, feasibility, and potential impact. The panel's expertise ensured a comprehensive evaluation of the ideas. To determine any significant differences in the quality and diversity of ideas generated between the human participants and ChatGPT, statistical methods were employed. These analyses aimed to provide a quantitative assessment of the capabilities of AI in comparison to human creativity.

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