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Connecting Artificial Intelligence Technologies to Enhance Mental Imagery

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ABSTRACT

The use of artificial intelligence (AI) technologies in enhancing mental imagery has gained significant attention in recent years. This research paper explores the various ways in which AI can be connected to enhance mental imagery and discusses the potential benefits and challenges associated with this integration. The paper begins by defining mental imagery and artificial intelligence and delves into the current research on how AI technologies can be used to improve mental imagery. It also looks at the different AI technologies that can be employed, such as machine learning, deep learning, neural networks, and natural language processing.

Furthermore, the paper examines the potential applications of AI-enhanced mental imagery in various fields, including healthcare, education, entertainment, and psychology. It discusses how AI can help individuals with mental health disorders, such as post-traumatic stress disorder (PTSD), by providing personalized and targeted mental imagery techniques. Additionally, the paper explores how AI can be used in virtual reality (VR) and augmented reality (AR) applications to create immersive and realistic mental imagery experiences.

Moreover, the paper addresses the ethical implications of connecting AI technologies to enhance mental imagery, such as privacy concerns, data security, and the potential misuse of AI-generated images. It also considers the limitations of AI technologies in replicating human thought processes and emotions accurately.

this research paper demonstrates the potential of connecting AI technologies to enhance mental imagery and highlights the opportunities and challenges associated with this integration. It provides valuable insights for researchers, practitioners, and policymakers in understanding the implications of AI technologies on mental imagery enhancement.

Keywords: Artificial Intelligence, AI Technologies, Mental Imagery**.**

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Introduction:

Artificial intelligence (AI) technologies have revolutionized the way we live, work, and interact with the world around us. From self-driving cars to virtual assistants, AI has permeated almost every aspect of our daily lives. One area where AI shows great promise is in enhancing mental imagery, the ability to create visual images in the mind's eye.

Mental imagery plays a crucial role in cognitive processes such as memory, problem-solving, and creativity. By leveraging AI technologies, researchers and scientists are exploring new ways to enhance and harness the power of mental imagery. In this article, we will delve into the potential of connecting AI technologies to enhance mental imagery and the impact it could have on various fields.

One of the key advantages of using AI to enhance mental imagery is its ability to process large amounts of data quickly and efficiently. AI algorithms can analyze patterns and correlations in data sets to extract meaningful insights that can inform and enrich mental imagery. This can be particularly useful in fields such as medicine, where doctors can use AI-powered tools to visualize complex anatomical structures or diagnose illnesses more accurately.

Moreover, AI can be used to create personalized mental imagery experiences tailored to individual preferences and needs. By analyzing user data and behavior, AI systems can generate visualizations that are better suited to each person's unique cognitive processes and preferences. This level of personalization can lead to more engaging and immersive mental imagery experiences, enhancing learning, creativity, and problem-solving abilities.

Furthermore, AI-powered tools can provide real-time feedback and guidance to help users improve their mental imagery skills. By analyzing the quality and accuracy of mental images generated by users, AI systems can offer suggestions and recommendations for enhancing visualization techniques. This feedback loop can facilitate faster learning and skill development, ultimately leading to improved cognitive capabilities.

Terminology of study:

The current study addresses a group of variables, including the following:

Artificial intelligence:

Artificial intelligence (AI) refers to the simulation of human intelligence in computers or machines programmed to think and act like humans. It involves developing algorithms and computer programs that can perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision making, and natural language understanding. The ultimate goal of artificial intelligence is to create machines that can perform tasks without human intervention, making them capable of performing complex tasks that require human-like intelligence. (Iryna & Borovyk, 2024)

While (Atli, 2023)) pointed out that artificial intelligence (AI) is a subfield of informatics that deals with the development of computer systems capable of performing tasks that typically require human intelligence, such as speech

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recognition, image recognition, decision making, problem solving, and learning from experience. AI systems are designed to act and think like humans, and can be used in various applications, including natural language processing, computer vision, robotics, and machine learning.

Mental image:

The mental image represents the total final product of all experiences, impressions, beliefs, feelings, and knowledge that any individual or group of individuals possesses about any organization. This mental image becomes clear in relation to organizations that have influence and responsibility towards society, and organizations in times of crises, and whenever organizations seek to build strong and lasting relationships. The longer the term with interest groups, the more established and more preferable these audiences have a mental image of these organizations. (Abdul-Aziz, 2024)

The mental image represents the impressions and perceptions that customers form about the organization's products and capabilities, which come from a group of influences, the most important of which is the creative value and the benefits it brings them. (Ritual, 2023)

Exploratory study:

The exploratory or exploratory study is considered an initial study carried out by the researcher to identify the most important elements of the study plan, especially the problem of the study and its dimensions, and to assist the researcher in constructing hypotheses, through a desk review of the Arabic literature and applied aspects related to the subject of the study, in order to reach the research gap of the current study (Ibrahim, 2012).

Objectives of the exploratory study:

The exploratory study carried out by the researcher aimed to achieve several objectives, the most important of which is to identify the following :

– Clearly defining and documenting the study problem through a desk review of the scientific literature for the study's independent and dependent variables, then a field and applied review, and finally a desk review of previous studies.

– Building the basic hypotheses of the study as possible reasons to explain the study problem .

– Identifying and crystallizing research variables to formulate hypotheses.

– Achieving a better understanding of the subject of study from a theoretical and applied perspective.

– Identifying the general characteristics of the study population, and forming an initial picture of it .

– Design the survey list.

Survey study method:

The researcher conducted a field exploratory study in order to learn about the practical aspects of the subject of the study. The researcher relied on conducting a group of interceptive personal interviews with a limited sample of customers of Egypt Air. The researcher relied on conducting individual interviews with (50) customers of

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Egypt Air. At different times during the day, the most important points discussed were :

– The extent to which Egypt Air customers are aware of the most important artificial intelligence technologies used by the company.
– The extent to which customers are able to use the artificial intelligence technologies applied by Egypt Air.
– The extent to which artificial intelligence technologies influence the formation of the mental image of Egypt Air in the minds of customers from the customers' point of view.

The field exploratory study reached the following results:

Through the various interviews conducted in the exploratory study, the researcher reached a set of results, which are as follows:

– Weak awareness of some clients of the company subject to the study of the most important artificial intelligence techniques used by the company.
– Low knowledge of some customers of the company under study on how to use the technologies applied in the company.
– The weak impact of artificial intelligence techniques in forming the mental image of Egypt Air in the minds of customers from the customers' point of view.

In light of the results of the scientific and applied review and the initial exploratory study, and the set of phenomena and evidence that was reached, the researcher reached the initial research gap, which is represented in the following: "The ineffectiveness of the artificial intelligence techniques used by Egypt Air in maximizing the mental image of customers "Company".

Previous studies:

This part deals with previous studies that dealt with the variables of the study. Previous studies will be presented as follows:

– Previous studies that dealt with artificial intelligence.
– Studies dealing with mental image.

Previous studies that dealt with artificial intelligence:

-The study **(Iryna & Borovyk, 2024)** aimed to study the opportunities of artificial intelligence in planning business operations in marketing and evaluate the impact of artificial intelligence in predicting real marketing situations. The article discusses the advantages of using artificial intelligence technology in marketing activities. In the context of the study, the stages of introducing artificial intelligence into marketing activities were also identified. Commercial organizations, its advantages and efficiency in making managerial decisions, the advantages of using artificial intelligence in search engine optimization (SEO) and SMM were identified, the importance of the synthesis between artificial intelligence and cognitive marketing was proven.

The study concluded that the use of artificial intelligence in the marketing activities of commercial enterprises is an effective tool and a requirement at that time. In

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conditions of uncertainty and social challenges for business, it is the digitization and technology of product promotion processes that provides the opportunity to preserve and develop them.

Research results also indicated that the introduction of artificial intelligence is an effective tool for an organization's marketing activities, which expands the capabilities of demand forecasting, inventory management, and increases business profitability. Predicting changes in customer behavior is an indispensable function of artificial intelligence, and systems can analyze data related to customers and their habits. purchasing and predicting how they will respond to certain marketing efforts. Applying artificial intelligence and cognitive marketing can help understand and meet customer needs, allowing retailers to increase the effectiveness of marketing campaigns and make them more successful.

- The study **(Atli, 2023)** addresses customer experience with artificial intelligence (AI) in marketing research: AI solutions in consumer behavior analysis, and articles were reviewed to determine the framework of customer experience with artificial intelligence in marketing research. artificial intelligence; It greatly helps businesses measure customer experience in marketing research and consumer behavior analysis Today, as technology evolves, people can deliver personalized experiences that increase customer satisfaction and loyalty using predictive analytics with machine learning and natural language processing. With AI-powered customer experience, companies can benefit from a wide range of AI-powered solutions, and the review recommends that marketing research should focus more on AI-powered customer experience solutions.

The research provides theoretical contributions and practical implications for customer experience in AI-supported marketing research in the field of marketing. In terms of theoretical contributions, the research is one of the important studies that aims to disseminate knowledge about customer experiences supported by artificial intelligence in the field of marketing. This study contributes to a better understanding of customer experience through AI-powered efforts in marketing research.

Through this study, a general evaluation of customer experience solutions supported by artificial intelligence in marketing mix management, consumer behavior analysis, and marketing research is conducted. It provides guidance for companies and researchers in this field who aim to provide AI-powered customer experiences in marketing research.

- While the study **(Labib, 2024)** addressed Artificial Intelligence in Marketing: Exploring Current and Future Trends, the current study aims to explore the use of Artificial Intelligence in marketing as an emerging research topic using the Systematic Literature Review (SLR) method. A group of 522 studies were collected between 2015 and July. 2023 and finalized from the Web of Science (WoS) database.

Furthermore, the current study expanded the SLR using bibliometric analysis. It is noted that there is a growing trend for artificial intelligence in the field of marketing. The results of the bibliometric analysis depicted six emerging groups of AI in marketing research, namely psychosocial dynamics, AI-enhanced market dynamics

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strategies, AI for consumer services, AI for decision-making, AI for value transformation, and AI for customer services. Ethical marketing.

The findings highlighted future research avenues in terms of context, methods and theory. The study also discussed the implications for academics and practitioners and proposed a future research agenda to examine the ongoing transformation driven by the rapid implementation of AI in marketing.

Studies dealing with mental image:

- The study **(Abdalaziz, 2024)** dealt with identifying the specialized institutional media and its functional role in forming the mental image of the institutional audience. The importance of this paper lies in the transformation brought about by the specialized media in the possibility of forming the mental image of various segments of society through what the specialized institutional media provides to the institutional audience via Means of communication and communication through them. ; The important role in forming opinions, making decisions, and shaping behavior through good performance that is consistent with the needs of the influential public affected by the policy of the individual or institution.

Therefore, the research focused on paying attention to the topic of the mental image in many media, psychological, social, and administrative studies, and given the pivotal role that the mental image plays in influencing the areas of institutional media influence, with its influential influence.

- The study **(Routal, 2023)** dealt with knowing the impact of the banking marketing mix on the image of commercial banks through a field study on Al Salem Bank's customers. We used the descriptive analytical approach and relied on the questionnaire to collect data from customers. As for data processing, we used the SPSS program.

The results concluded that there is a statistically significant positive effect of the banking marketing mix on image formation at Al Salem Bank from the customers' point of view, a statistically significant positive effect of the traditional marketing mix on image formation at Al Salem Bank from the customers' point of view, a statistically significant positive effect of the mix. The expanded marketing on the formation of the image in Al Salam Bank from the customers' point of view, and a positive and statistically significant effect of the dimensions of Al Salam Bank's image from the customers' point of view, and a positive and statistically significant effect of the dimensions of Al Salam Bank's image from the customers' point of view Customers' point of view

- The study **(El-Sayed, etal. 2021)** aimed to identify the mental image exchanged between police personnel and community members and its impact on societal stability. The study sample was chosen randomly and divided into two groups, the police sample consisting of (50) items, and the other the different community groups. It consists of (200) paragraphs.

The study belongs to the descriptive (qualitative) type of studies using a social survey approach. The study tools are embodied in scale, observation, and some other statistical methods such as T-test, frequencies, percentages, and correlation coefficient.

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The results indicate that the nature of the mental image that citizens have towards the police personnel is positive, as they consider the police to be a national institution that has positive attitudes towards the Egyptian people, despite the presence of some shortcomings.

The results also indicate that the image held by the research community about police authority is positive, especially after the June 30 Revolution. This image is built by the media and personal experiences.

The study reached a set of the most important recommendations of the study: the necessity of cooperation between the media and police personnel in spreading security awareness in all means of mass communication for all categories of citizens, and simplifying procedures in police departments that the public deals with, such as traffic, passports, and civil status.

Variables and research model:

Study variables:

The study variables are as follows:

The independent variable: artificial intelligence techniques, and the most important variables (sub-dimensions) of the variable are represented in the following: (Al-Abbasi, 2021)

- Chat bot.
- Dynamic pricing.
- Targeted offers.
- Data analysis.
- Content recommendation.

The dependent variable: mental image. The most important variables (sub-dimensions) of the variable are represented in the following:

- The cognitive dimension.
- The emotional dimension.
- The behavioral dimension.

These dimensions can be clarified as follows in the following Table (1):

Primary variables	Sub-Variables	Ref.
Independent variable: artificial intelligence	-Chat bot. -Dynamic pricing. -Targeted offers. -data analysis. - Content recommendation.	(Ismail, 2021)
The dependent variable: mental image	- The cognitive dimension. - The emotional dimension. - Behavioral dimension.	(Al-Khatib, 2011)

Source: Prepared by the researcher

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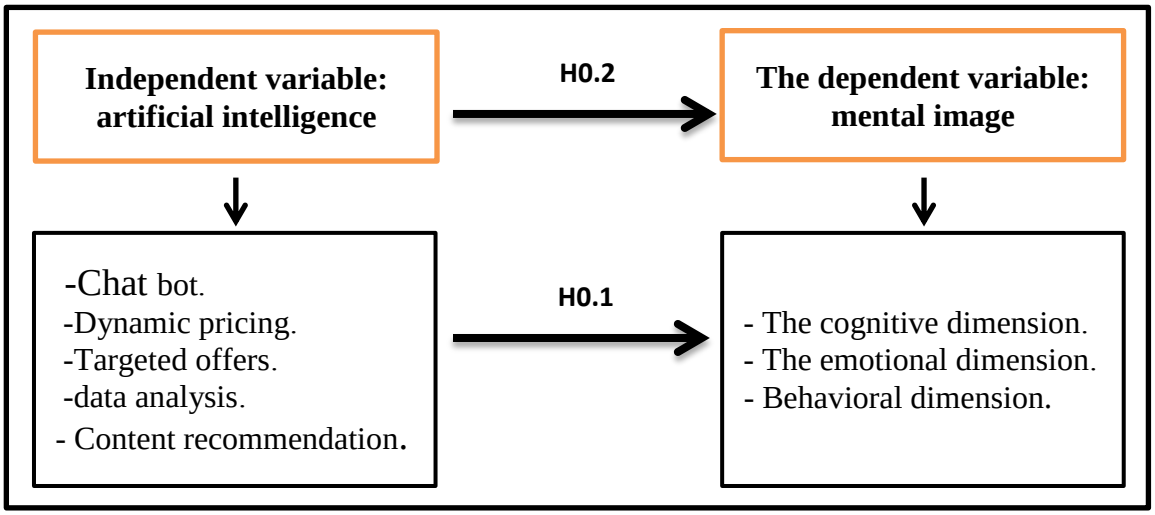
Search model:

The current research model can be illustrated in Figure (1) below:



Source: Prepared by the researcher

Study hypotheses:

When formulating the study hypotheses, the researcher relied on previous studies that were covered, and personal interviews conducted with some of EgyptAir customers subject to the study, and in light of the study problem and its objectives, the study hypotheses were formulated in light of the null hypothesis to test the following hypotheses:

The first hypothesis (H1): There is no statistically significant relationship between the dimensions of advertising artificial intelligence techniques and the dimensions of the mental image among Egypt Air customers.

The second hypothesis (H2): There is no statistically significant effect of removing artificial intelligence techniques on the dimensions of mental image among Egypt Air customers.

Research Objectives:

In light of the problem and hypotheses of the study, this study seeks mainly to improve the mental image of the Egypt Air company under study among customers.

In detail, the current study aims to:

– Study and analyze the relationship between artificial intelligence techniques in its dimensions and the mental image in its dimensions among customers of the Egypt Air company subject to the study.

– Determining the degree of influence of the dimensions of artificial intelligence techniques on the dimensions of the mental image among customers of the Egypt Air company under study.

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– Identifying and describing the statistical differences between the perceptions of customers (the respondents) about the dimensions of artificial intelligence technologies, according to their demographic characteristics.

– Revealing the differences in the perceptions of customers (the respondents) of the Egypt Air company under study regarding the dimensions of mental image, according to their demographic characteristics.

Problem Statement:

Through the results of the exploratory study in all its methods carried out by the researcher, as well as through what was extracted from previous studies, it was possible to determine the problem of the study, which is "the ineffectiveness of the artificial intelligence techniques used by Egypt Air in maximizing the mental image of the company's customers".

Therefore, the study problem can be formulated in the following questions:

-What is the relationship between artificial intelligence techniques and the mental image of the Egypt Air company under study؟

– What is the impact of artificial intelligence technologies on the mental image of the Egypt Air company under study?

– To what extent do the perceptions of Egypt Air customers subject to the study differ regarding the dimensions of the mental image (cognitive - behavioral - emotional) for each dimension separately? Do their perceptions of the mental image differ according to their demographic characteristics (gender, age, income, educational level)؟

– What are the perceptions of mobile phone company customers regarding the dimensions of artificial intelligence technologies, and do their perceptions differ according to their demographic characteristics (gender, age, income, educational level)?

Research Methodology:

Qualitative Methods:

– Literature Review: This involves reviewing existing research on mental imagery and AI to understand the current state of knowledge and identify gaps that this research aims to address.

– Expert Interviews: Consulting with researchers or practitioners in the fields of mental imagery, cognitive science, and AI to gain deeper insights and perspectives on the topic.

Quantitative Methods:

– Surveys: Distributing surveys to collect data on people's experiences and use of mental imagery techniques. This could involve questions about their current practices, challenges, and openness to AI-powered enhancements.

– Experimentation: Designing experiments to test the effectiveness of AI-powered mental imagery techniques compared to traditional methods. This could involve measuring factors like performance, learning, or emotional response.

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Data Analysis:

– ***Thematic Analysis (Qualitative):*** Analyzing interview transcripts and other qualitative data to identify recurring themes and patterns related to mental imagery and AI.

– ***Statistical Analysis (Quantitative):*** Analyzing survey data and experiment results using statistical methods to assess the effectiveness of AI-based techniques.

Overall, the research methodology would depend on the specific research questions being addressed by the paper. The combination of qualitative and quantitative methods would provide a well-rounded understanding of the topic.

Evaluate reliability and validity:

The first step in the process of analyzing the primary data for this study was to evaluate the reliability and validity of the measures used in the study. The aim of this is to reduce random measurement errors and increase the degree of reliability in the measures used in the study, in addition to arriving at measures that can be highly relied upon.

Testing reliability and validity factors:

The reliability and validity test aims to evaluate the degree of internal consistency of the survey questions and verify their reliability, the extent to which the results of statistical analysis can be relied upon, and the extent to which these results can be generalized to the study population, through Cronbach's Alpha test, and the measure is statistically acceptable if the alpha value is (Equal to or greater than 60%) in order for the results of the study to be generalized to the study population. The validity coefficient is calculated by calculating the square root of the reliability coefficient (alpha value).

Table (2) The value of consistency and honesty

Variable	Study Variables	Number of Phrases	Stability Coefficient	Honesty Coefficient
Independent Variable:	Artificial Intelligence	15	**0.880**	**0.938**
	Chat bot.	3	**0.746**	**0.864**
	Dynamic pricing.	3	**0.806**	**0.898**
	Targeted offers.	3	**0.699**	**0.836**
	Data analysis.	3	**0.695**	**0.834**
	Content recommendation.	3	**0.836**	**0.914**
The Dependent Variable	Mental Image	11	**0.809**	**0.900**
	Cognitive dimension.	4	**0.710**	**0.843**
	Emotional dimension.	3	**0.689**	**0.830**
	Behavioral dimension	4	**0.790**	**0.889**

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Total	**0.809**	**0.900**

Source: Results of statistical analysis of study data

From the previous table, it is clear that the total percentage of the reliability coefficient reached (80.9%), while the percentage of the reliability coefficient reached (90.0%), which is a statistically acceptable percentage, which confirms the possibility of relying on the results of statistical analyzes and the possibility of generalizing them to the study population, as the reliability coefficient was at the level of the independent variables. As a whole (88.0%), which is a statistically acceptable value, it is also clear that the validity coefficient at the level of the independent variables as a whole was (93.8%), which is a statistically acceptable value. As for the dependent variable, the value of the reliability coefficient at the level of the survey questions reached (80.9%), which is A statistically acceptable value. Based on the previous results, the survey questionnaire questions used in the study have a high degree of internal stability and consistency, which means that it is possible to rely on the results of the list and be confident in its credibility

Descriptive analysis of research variables:

This part deals with the results of the descriptive statistical analysis related to artificial intelligence techniques and their impact on the mental image of Egypt Air in the minds of the company's customers. To verify this, descriptive statistical methods represented by the height and standard deviation were applied in analyzing the data on the trends of the respondents, with the aim of identifying which statements gained the highest and lowest degrees of agreement between the opinions of the respondents. The degree of impact is determined.

Table (3) Descriptive statistics for study variables

Ferries	Arithmetic Mean	Standard Deviation
Artificial Intelligence	**4.40**	**0.39**
Chat bot.	**4.44**	**0.37**
Dynamic pricing	**4.41**	**0.41**
the Targeted offers	**4.41**	**0.48**
the Data analysis	**4.43**	**0.51**
The Content recommendation	**4.40**	**0.53**
Mental Image	**4.51**	**0.40**
the cognitive dimension	**4.42**	**0.42**
the emotional dimension	**4.44**	**0.38**
the Behavioral dimension	**4.44**	**0.44**

Source: Results of statistical analysis of study data

It is clear from the previous tabling that:

– There is agreement between the opinions of the respondents about the chat robot, as the overall agreement rate for the arithmetic mean was 4.44 and a standard deviation of (0.37).

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– There is agreement between the opinions of the respondents about dynamic pricing, as the overall agreement rate for the arithmetic mean was (4.41) and the standard deviation was (0.41).

– There is agreement between the respondents' opinions about directed offers, as the overall agreement percentage reached arithmetic mean (4.41) and standard deviation (0.48).

– There is agreement between the opinions of the respondents regarding data analysis, as the overall percentage of agreement reached the arithmetic mean (4.43) and the standard deviation (0.51).

– There is agreement between the opinions of the respondents regarding the content recommendation, as the overall agreement rate for the arithmetic mean was (4.40) and a standard deviation of (0.53).

– There is agreement between the opinions of the respondents about the dimensions of artificial intelligence techniques, as the overall agreement rate for the arithmetic mean was (4.40) and the standard deviation was (0.39).

– There is agreement between the opinions of the respondents regarding the cognitive dimension, as the overall agreement rate for the arithmetic mean was (4.42) and the standard deviation was (0.42).

– There is agreement between the opinions of the respondents regarding the emotional dimension, as the overall agreement rate for the arithmetic mean was (4.44) and a standard deviation of (0.38).

From the previous table, it is clear that there is agreement between the opinions of the respondents regarding the behavioral dimension, as the overall agreement percentage for the arithmetic mean was (4.44) and a standard deviation of (0.44).

– There is agreement between the opinions of the respondents about the mental image of Egypt Air among customers, as the overall agreement percentage for the arithmetic mean was (4.51) and a standard deviation of (0.40).

Testing the study hypotheses and analyzing the results:

This part deals with the results of the statistical analysis reached by the study with regard to testing the validity of the study's hypotheses, as follows:

The first hypothesis (H1): There is no statistically significant relationship between the dimensions of advertising artificial intelligence techniques and the dimensions of mental image among Egypt Air customers.

The study relied on Spearman correlation analysis, which aims to determine the direction and strength of the relationship between the study variables in the sample under study. Table (4) shows the results of Spearman correlation analysis of the study variables.

Table (4) Results of analyzing the correlation between artificial intelligence techniques and the cognitive dimension

Variables		The cognitive dimension
Chat bot.	Spearman correlation coefficient	**.567****
	Moral level	**0.000**

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	Sample volume	**380**
Dynamic pricing	Spearman correlation coefficient	**.506****
	Moral level	**0.000**
	Sample volume	**380**
the Targeted offers	Spearman correlation coefficient	**.574****
	Moral level	**0.000**
	Sample volume	**380**
the Data analysis	Spearman correlation coefficient	**.528****
	Moral level	**0.000**
	Sample volume	**380**
The Content recommendation	Spearman correlation coefficient	**.571****
	Moral level	**0.000**
	Sample volume	**380**
Artificial Intelligence	Spearman correlation coefficient	**.661****

Source: Results of statistical analysis of study data

The variables of artificial intelligence techniques from the point of view of the respondents, and there is a strong and significant direct correlation between both (artificial intelligence techniques and the cognitive dimension as one of the dimensions of the mental image, with a direct correlation coefficient of .661 **

From the above, we reject the assumption that "there is no fundamental, statistically significant correlation between the dimensions of artificial intelligence techniques and the cognitive dimension".

Table (5) Results of analyzing the correlation between artificial intelligence techniques and the emotional dimension

Variables		**The emotional dimension**
Chat bot.	Spearman correlation coefficient	**.553****
	Moral level	**0.000**
	Sample volume	**380**
Dynamic pricing	Spearman correlation coefficient	**.485****
	Moral level	**0.000**
	Sample volume	**380**
the Targeted offers	Spearman correlation coefficient	**.595****
	Moral level	**0.000**
	Sample volume	**380**
the Data analysis	Spearman correlation coefficient	**.570****
	Moral level	**0.000**
	Sample volume	**380**
The Content recommendation	Spearman correlation coefficient	**.596****
	Moral level	**0.000**
	Sample volume	**380**
Artificial Intelligence	Spearman correlation coefficient	**.688****

Source: Results of statistical analysis of study data

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From the previous table, it is clear that the results of the statistical analysis show that there is a direct and significant correlation between the majority of the variables of artificial intelligence techniques from the perspective of those investigated and the emotional dimension. That is, there is a strong and significant direct correlation between both (artificial intelligence technologies and the emotional dimension as one of the dimensions of the mental image). This has a direct correlation coefficient of .688 **

From the above, we reject the assumption that "there is no fundamental, statistically significant correlation between the dimensions of artificial intelligence techniques and the emotional dimension."

Table (6) Results of analyzing the correlation between artificial intelligence techniques and the behavioral dimension

Variables		The behavioral dimension
Chat bot.	Spearman correlation coefficient	**.565****
	Moral level	**0.000**
	Sample volume	**380**
Dynamic pricing	Spearman correlation coefficient	**.524****
	Moral level	**0.000**
	Sample volume	**380**
the Targeted offers	Spearman correlation coefficient	**.544****
	Moral level	**0.000**
	Sample volume	**380**
the Data analysis	Spearman correlation coefficient	**.570****
	Moral level	**0.000**
	Sample volume	**380**
The Content recommendation	Spearman correlation coefficient	**.598****
	Moral level	**0.000**
	Sample volume	**380**
Artificial Intelligence	Spearman correlation coefficient	**.662****

Source: Results of statistical analysis of study data

From the previous table it is clear that the results of the statistical analysis are that there is a direct and significant correlation between the majority of the variables of artificial intelligence techniques from the perspective of the respondents and privacy, and there is a strong and significant direct correlation between both (artificial intelligence techniques and the behavioral dimension as a dimension of the mental image), with a coefficient Direct correlation .662 **

From the above, we reject the assumption that "there is no fundamental, statistically significant correlation between the dimensions of artificial intelligence and the behavioral dimension."

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- ***The main hypothesis of the research (Ho1):***

The first hypothesis (H1): There is no statistically significant relationship between the dimensions of advertising artificial intelligence techniques and the dimensions of mental image among Egypt Air customers.

To test the relationship between the dimensions of artificial intelligence techniques and the dimensions of mental image among Egypt Air customers, the research relied on Spearman correlation analysis: which aims to determine the direction and strength of the relationship between the study variables in the sample under study, and Table No. (7/1) shows Results of Sipper man correlation analysis for study variables.

Table (7) Results of analyzing the correlation between artificial intelligence techniques and mental images

Variables		Mental Images
Chat bot.	Spearman correlation coefficient	**.592****
	Moral level	**0.000**
	Sample volume	**380**
Dynamic pricing	Spearman correlation coefficient	**.442****
	Moral level	**0.000**
	Sample volume	**380**
the Targeted offers	Spearman correlation coefficient	**.726****
	Moral level	**0.000**
	Sample volume	**380**
the Data analysis	Spearman correlation coefficient	**.491****
	Moral level	**0.000**
	Sample volume	**380**
The Content recommendation	Spearman correlation coefficient	**.482****
	Moral level	**0.000**
	Sample volume	**380**
Artificial Intelligence	Spearman correlation coefficient	**.631****

Source: Results of statistical analysis of study data

From the previous table, it is clear from the results of the statistical analysis that there is a direct and significant correlation between the majority of the variables of artificial intelligence techniques from the point of view of those investigated and the mental image. That is, there is a strong and significant direct correlation between both (artificial intelligence techniques and the mental image), with a direct correlation coefficient. .631 **

From the above, we reject the assumption that "there is no fundamental, statistically significant correlation between the dimensions of artificial intelligence techniques and the mental image."

The second hypothesis (H2): There is no statistically significant effect of removing artificial intelligence techniques on the dimensions of mental image among Egypt Air customers.

To test the effect of the dimensions of artificial intelligence techniques on the mental image dimensions of customers by applying it to Egypt Air, the validity of the third

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hypothesis is verified, which says, "There is no statistically significant effect of the dimensions of artificial intelligence techniques on the dimensions of the mental image of Egypt Air customers." The method of stepwise regression analysis was relied upon to test the validity of this hypothesis. This method aims to identify the most important factors influencing customers' mental image.

Table (8) The impact of the dimensions of artificial intelligence technologies on the mental image of customers

Variables	Unstandardized Coefficients		Standard Coefficients	T	Sig.	Tol	VIF
	B	Std. Error	Beta				
Artificial Intelligence	0.685	0.039	0.672	17.654	0.000	1.000	1.000
Constant	1.484						
Correlation coefficient R	.672						
Coefficient of determination R2	0.450						
Adjusted coefficient of determination R2 Adjusted	.000						
"F" test value	55.872						
Moral level	0.000						

Source: Results of statistical analysis of study data

From the previous table, it is clear that the significance of the model used as a whole in testing the independent variables (dimensions of artificial intelligence technologies (as a whole)) that affect the mental image of customers, as the F value reached 55.872) at a significance level of (0.000), which is less than 5%, and therefore the The model is valid for predicting the value of (customers' mental image) and the results are significant, which helps us in making a decision. As for the explanatory power, it is noted that the value of the multiple correlation coefficient (R) between the independent and dependent variables reached (.672), and their relative contribution, which is reflected by the coefficient The determination (R2) was (0.450), which means that the independent variables (artificial intelligence technologies (as a whole)) explain 45.0% of the dependent variable (the mental image of customers), and thus the effect of the dimensions of artificial intelligence technologies on the mental image of customers becomes clear.

Discussion:

Summary of the Research Paper on AI and Mental Imagery

This research paper explores the potential of artificial intelligence (AI) to enhance mental imagery, the ability to form mental pictures in the mind's eye.

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Key Points:

– AI can analyze vast amounts of data to create detailed and personalized mental imagery experiences.

– AI-powered VR and AR technologies can create immersive and interactive mental imagery environments.

– AI offers real-time feedback to improve mental imagery skills.

Benefits of AI-Enhanced Mental Imagery:

– Improved cognitive processes like memory, problem-solving, and creativity.

– Personalized mental imagery experiences for various fields like education, healthcare, and entertainment.

– Potential for AI-powered therapy for mental health disorders.

Challenges and Considerations:

– Ethical concerns about privacy, data security, and potential misuse of AI-generated imagery.

– Limitations of AI in replicating the complexity of human thought processes and emotions.

The Future of AI and Mental Imagery:

– Advancements in AI are expected to unlock new possibilities for enhancing mental imagery and its applications.

– AI-powered research can improve our understanding of the human brain and mental processes.

Conclusion:

In conclusion, the potential of connecting AI technologies to enhance mental imagery is vast and promising. By leveraging AI algorithms, researchers, scientists, and professionals can unlock new opportunities for improving cognitive processes, creativity, and problem-solving abilities. As AI continues to advance, we can expect to see even more innovative applications and tools that harness the power of mental imagery to drive progress and innovation in various fields. Stay tuned for the exciting developments that lie ahead in this exciting intersection between AI and mental imagery.

Answers to the research questions:

Covering the key aspects of AI and mental imagery:

– Definition of both AI and mental imagery

– Current research on using AI for mental imagery

– Different AI technologies applicable (machine learning, VR/AR)

– Potential applications in various fields (healthcare, education)

– Ethical considerations and limitations

Areas for Improvement:

– **Focus**: The review can benefit from streamlining the sub-sections within the "Reviews of the XAI literature" section. This section delves deep into explainable AI (XAI), which might be a separate topic for another review.

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– **Sources**: Consider adding citations or mentioning credible sources to support the claims made throughout the review.
– **Flow**: The sections "The role of artificial intelligence in enhancing mental imagery" and "Understanding the potential of artificial intelligence in enhancing mental imagery" cover similar ground. Merging them with a clearer organization would improve readability.

Additional Points:

– The review effectively highlights the potential benefits of AI in mental imagery, including:
  - Personalized experiences
  - Improved learning and skill development
  - Real-time feedback and guidance
– The ethical considerations like privacy, data security, and misuse of AI-generated images are aptly addressed.
– You can strengthen the conclusion by reiterating the key takeaways and emphasizing the exciting future possibilities of AI-enhanced mental imagery.

Recommendations:

Clear and Concise Structure: The review is well-organized with clear headings and subheadings that guide the reader through the different aspects of AI and mental imagery.
Comprehensive Coverage: The review covers a wide range of topics related to AI and mental imagery, including the definition of both terms, the potential benefits of AI for mental imagery enhancement, applications in various fields, ethical considerations, and the future directions of this research area.
Multiple Perspectives: The review highlights the potential of AI for enhancing mental imagery in various fields, including healthcare, education, entertainment, and psychology.
Balanced Approach: The review acknowledges both the benefits and challenges of using AI for mental imagery enhancement, including ethical considerations and limitations of AI technologies.

Suggestions for Improvement:

***Strengthen Introduction*:** The introduction could be strengthened by providing a specific example of how AI can enhance mental imagery.
Provide More Details on Explainable AI: The section on Reviews of the XAI literature can be trimmed. You can mention the importance of Explainable AI (XAI) in ensuring user trust and understanding of AI-generated mental imagery but avoid going into extensive detail.
Consider Adding a Conclusion: A brief concluding paragraph summarizing the key takeaways and reiterating the promising future of AI in mental imagery enhancement would be beneficial.

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Contribution to the literature:

Novel applications of AI in mental imagery: The paper explores how AI can be used to create personalized mental imagery experiences, provide real-time feedback and guidance, and analyze brain activity to understand mental imagery processes. These applications haven't been extensively explored before.

Focus on ethical implications: The paper addresses the ethical considerations of using AI for mental imagery, such as privacy concerns, data security, and the potential misuse of AI-generated images. This is an important aspect that needs further discussion in this field.

AI's potential for mental health: The paper explores how AI-powered VR/AR can be used for exposure therapy in mental health treatment and how AI algorithms can personalize interventions for mental imagery-related disorders. This contribution connects AI advancements to potential improvements in mental healthcare.

Comprehensive review of existing research: The paper integrates existing research on AI and mental imagery by providing a structured review of different AI techniques (machine learning, deep learning etc.) and their potential applications in this field.

Future Research Suggestions:

Personalization and User-Centric Design:

– Develop AI that personalizes mental imagery experiences based on individual cognitive styles, preferences, and goals.

– Explore neurofeedback techniques integrated with AI to tailor visualizations in real-time based on brain activity.

– Investigate user interfaces that allow seamless interaction and control over AI-generated mental imagery.

Augmenting Human Expertise:

– Research how AI can assist therapists and healthcare professionals in crafting personalized mental imagery interventions for various conditions.

– Explore how AI can analyze patient data and brain activity to recommend optimal mental imagery techniques for specific needs.

– Develop AI-powered tools for educators to create adaptive learning experiences that leverage personalized mental imagery for better understanding.

Bridging the Explainability Gap:

– Research methods for AI to explain its reasoning behind generated mental imagery, fostering trust and user understanding.

– Develop user interfaces that visualize the thought processes behind AI-generated imagery, promoting transparency.

– Investigate ethical considerations of manipulating mental imagery through AI and ensure user autonomy in the process.

Novel Applications and Use Cases:

– Explore the potential of AI-powered mental imagery for creativity enhancement, brainstorming sessions, and problem-solving in various fields.

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– Investigate the use of AI-generated mental imagery for motor skill learning and rehabilitation programs.
– Research the application of AI in mental imagery training for athletes and performers to improve their mental preparation and peak performance.

Integration with Brain-Computer Interfaces (BCIs):

– Explore how AI can interpret signals from BCIs to generate mental imagery that reflects a user's thoughts and intentions.
– Investigate the potential of a closed-loop system where AI analyzes user responses to mental imagery and adjusts the experience accordingly.
– Research the ethical implications of using BCIs and AI to manipulate mental imagery directly.

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