

The Role of User Experience in the Acceptance of AI Roles in Different Industries

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Abstract

AI enabled robots are accessible across diverse business sectors and are also integrated into our daily routines. While some individuals are captivated by the prospect of having robots support them in their day-to-day tasks, others exhibit more caution. This article will describe potential AI robot types that might have a utility in various activity domains (human tasks, household, sales, professor, healthcare, finance, trainer, barman, career indication or management). Associated with their capabilities (reply sounds, display pictures or figures, sense temperature, and other technologies), they can influence the performance in different areas of expertise in the business environment or in daily life. During the interaction with AI in several domains, most people agree to the new technology while others can get more confused for different reasons while using it. With the help of an online survey, we found out which type of AI role is most preferred and in which domain the consumer can imagine their implementation. Among the various types of AI that were mentioned in the questionnaire, household assistants are the robots with artificial intelligence that consumers prefer when they want to perform daily activities. The second most preferred type of artificial intelligence used is within finance, in the household or as a barman, and last place that is not really recommended, is using AI in domains related to giving career or personal advises. Results show that household robots with artificial intelligence, are used most often by the consumer starting from Smart House Assistants to mini robots for cleaning the carpet, kitchen assistants for cooking the food and other different products which can perform various activities which the human is doing almost daily.

Keywords

Artificial intelligence, consumer, role, acceptance, user experience, ease of use.

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Introduction

Week after week, headlines about artificial intelligence (AI) flood our news feeds, often oscillating between exaggerated utopian promises and dystopian fears (Kaplan and Haenlein, 2019; Pelau, Dabija and Ene, 2021). However, not only in the realm of business but also in our daily live, AI delivers tangible and invaluable advantages that were implemented (Martinez-Lopez and Casillas, 2013). Currently companies are investing globally huge amounts in the further development of AI on markets and due to this action, still also the revenue values of this companies are increasing.

The mode in which AI is developing is based on human needs, which could be replaced and performed autonomously by a machine or a robot (Huang and Rust, 2018; Shin, Tada and Managi, 2019). In some cases, the accuracy and capabilities of robots are much higher than the implication of a human in an action. Compared to AI, people have changing moods and the motivation to do an activity will decrease while doing. Similarly, the energy invested in one's actions will decrease in time for the human, while it will remain constant for the AI. To implement AI for this specific action, all human moves required to execute the action will be tracked, and specific programming is needed to design similar actions within the

intelligent device (Jarrahi, 2018). The advantage for the human consumer lies in the opportunity costs, as he/she can do other tasks while the AI takes over certain tasks.

Literature review

Originally, the concept of AI aimed to develop machines capable of reasoning, learning, and problem-solving. Over time, AI research has undergone substantial evolution, influencing diverse domains including household applications, healthcare, finance, transportation, and entertainment (Huang and Rust, 2018). Meanwhile, AI can take over different types of tasks such as summarizing emails, draft reports, and even generate slide decks for processes and presentations. Additionally, image-making models enable users to create shareable figures and charts (Galloway and Swiatek, 2018). The rapid adoption of AI tools has reset the course of an entire industry. Another field in which AI is developing a significant progress is multimodality, which involves combining data from different modalities (such as text, images, and audio) to enhance AI systems' understanding and capabilities in various formats. Even more the potential to revolutionize legal research and decision-making can be performed using the Constitutional AI, by analyzing legal texts and historical documents, constitutional AI aims to assist legal professionals in interpreting and applying constitutional principles (Galloway and Swiatek, 2018).

Diverse opinions concerning their utilization and implementation in several domains is still a topic of discussion because in such cases the human interaction from a specific field would be not needed anymore because that activity would be performed autonomously (Bertacchini, Bilotta and Pantano, 2017; Gradinaru et al., 2024). Still the general perspective of people regarding the use of AI robots is favorable. Likewise, in the domain of machines, the present generation of robots exhibits an impressive capacity to learn from their environment and rapidly adjust to new situations. Currently, there are various types of robots equipped with artificial intelligence. Consumers tend to favor a specific type of AI robot based on their preferences and needs in their specific business domain or within a personal household activity (Barbul et al., 2022).

Interesting to discuss is the way AI substitutes the human factor. On one hand, AI tends to have a big impact on the efficiency of a company, and therefore, it attracts many companies to implement it, but on the other hand, it lacks some attributes that the human interaction provides, with regards to the customer engagement and interaction. Therefore, it can be devised that artificial intelligence, does not yet reach the full potential to completely substitute the human intelligence. On the road to achieve this, according to Huang and Rust (2018), four types of intelligences were found, based their chronological development in history. These four types of intelligence specific to devices are mechanical, analytical, intuitive and empathetic (Huang and Rust, 2018).

Mechanical intelligence is the first form of AI development and it is the least complex between those mentioned earlier. It replaces the processes that can be easily automated, especially the repetitive processes, such as those of unskilled or low skilled personnel. For instance, according to the study, such jobs are waiters/waitresses, taxi drivers and call center agents. Also, due to the nature of their activities that they replace, those robots do not have an active need for a strong maintenance, including new software updates or upgrades (Huang and Rust, 2018).

Analytical intelligence is the next form of AI developed and focuses on the automation of the cognitive processes. It refers to machine learning and data analytics algorithms, which have the ability to analyze data and identify different patterns by using prebuilt models. Although it has the capability to self-improve its algorithm, its peak accomplishment reached so far, is its capability to generate a form of collective intelligence, by using more machines simultaneously that communicate with each other (Huang and Rust, 2018). This aspect arises from big data and the necessity to analyze the constantly increasing datasets. More computational power is necessary to create a collective intelligence by combing data from multiple machines. This type of AI can be referred to as the so called "weak AI" due to the fact that it lacks intuition (Huang and Rust, 2018), and therefore it limits the directions in which the algorithm can go.

The third category is called intuitive intelligence and it focuses on the ability to be independent but also to adapt to different scenarios and situations. It is said that this type of AI, can be considered as the so called "strong AI", due to the fact that it has the capability to function as a human being (Huang and Rust, 2018). According to the study, the big difference between the analytical and the intuitive AI is the process of understanding the results and improve itself based on those. Therefore, it is less likely for an intuitive AI to repeat the same mistake as the analytical AI, due to its capability to understand specific problems and adapt to it. However, several types of algorithms have proven their limit, as several human biases are adopted in the development of this type of intelligence (Tubadji, Huang and Webber, 2021; Rad et al., 2023).

The last and therefore most advanced form of intelligence is the empathetic intelligence. It relies upon the characteristics mentioned in the previous types of intelligence but adds the capacity to understand, feel and interpret emotions. Although many say that emotions are a result of different biological and chemical processes and reactions inside the human body, with enough programming skills, time, trial and error, it might be possible to create such a form of intelligence, especially since the literature regarding this topic says that emotions are similar to cognition and they can be relatively easily programmed in a similar way (Huang and Rust, 2018; Pelau, Dabija and Ene, 2021). This type of AI is designed to be used in heavy relying communication and social domains. Such domains could be psychiatry, where a high level of empathy is necessary to understand the needs of a patient (Bertl, Ross and Draheim, 2022), service industry or education system, where human interaction is at the core of the profession (Saseanu, Gogonea and Ghita, 2024), lawyers, where knowing how to present a case, and how to adapt one's case, based on the surrounding emotional factors is a possible key to success (Kelly, 2024), and so on. The appearance of those AI is necessary in order to facilitate the existence of some sort of emotion. Humans tend to show more affection and be more open to machines that have a higher level of anthropomorphism and therefore have a higher level of human like characteristics and aspect (Pelau, Dabija and Ene, 2021).

There are a lot of markets in which AI were implemented and have a good performance in the last years (Huang and Rust, 2022; Bertacchini, Bilotta and Pantano, 2017). Remarkable and outstand results were coming from AI robots which can perform human tasks that are not requested the ability of thinking just doing an action. Still there are also fields in which AI characteristic are not quite matching and are under study. The reason for this is that the AI can perform actions that were programmed before. By asking an AI robot to support your personal life issues, you may not receive the expected answers and you get more confused (Jarrahi, 2018; Pop et al., 2023). AI lacks the ability to fully understand an individual's unique circumstances, aspirations, and personal context. Career decisions are deeply personal and require nuanced consideration of factors like interests, skills, and values. AI, despite its capabilities, cannot truly empathize with human experiences. Human judgment and intuition still play a crucial role in career choices.

Methodology

The objective of this research is to empirically measure whether artificial intelligence can take the role of a human person or not. To achieve the objective, a questionnaire was created. With the help of the questionnaire, we found out the consumers' perception whether or not, artificial intelligence can take the role and do a task performed usually by human persons. Respondents were asked to choose the right answer depending on their interaction experience with artificial intelligence. The questionnaire consists of 13 questions with scaled responses ranging from 1 (strongly disagree) to 7 (strongly agree), where respondents were asked to tick the statement that best suits them. With the help of the t-test, performed in Excel and with the help of discriminant analysis, a comparison was made between people who interacted with artificial intelligence and people who did not interact with artificial intelligence. In the following, the main results are presented.

Results

Table 1 shows the average values of the 13 questions from the questionnaire and a comparison between the average values related to the perception of respondents who interacted with AI and the average value of respondents who did not interact with the AI. The significance of the difference was measured with the t-test. In the discussion part, we present the results of the research and compare the people who have interacted with AI with the people who have not interacted with AI, in order to discover their opinion about artificial intelligence and its functions.

In the table 1 we can see the average answers for the first question: Can AI take over human tasks? With a general average of 3.975 we can be seen that the respondents believe that AI can take over human tasks. It can be also seen that people who have interacted with AI say that AI can take over human tasks with an average of 4.077, and people who have not interacted with AI agree less with this question, with an average of 3.872. The t-test ($t\text{-test}=0.224$) shows no significant differences between people who have interacted with AI and people who have not interacted with AI, which means that experience in using AI does not affect the perception that AI can take over human tasks.

Table no. 1. Results regarding consumers' perception on AI roles

	Average	Average AI experience	Average no AI experience	Ttest
This AI can take over human tasks	3,975	4,077	3,872	0,224
This AI can do household activities	3,930	3,939	3,921	0,918
This AI can be a good sales agent	3,622	3,757	3,483	0,119
This AI can be a good teacher	3,558	3,741	3,372	0,033
This AI can make beneficial suggestions for health issues	3,538	3,709	3,364	0,047
This AI can take over the financial management of the household	3,507	3,611	3,401	0,234
This AI can be a good bartender	3,499	3,591	3,405	0,292
This AI can give career advice	3,364	3,543	3,182	0,036
This AI can be a good doctor	3,029	3,182	2,872	0,066
This AI can give personal advice	3,012	3,158	2,864	0,076
This AI can prescribe a medical prescription	2,992	3,101	2,880	0,189
This AI can be a good psychotherapist	2,800	3,000	2,595	0,014
This AI can occupy top positions in a company	2,603	2,725	2,479	0,129

Source: Own research results.

The second question in the questionnaire is: Can AI do housework? With an average of 3.930, respondents who took part in the survey say that AI can do housework. Comparing the average of people who have interacted with AI (average=3.939) and the average of people who have not interacted with AI (average=3.921), we realize that both categories of respondents have the opinion that AI can do household activities. Likewise, the t-test, which is 0.918, shows us that there is no significant differences between the two categories of respondents, which means that even if you have interacted with the AI or not, you can realize that it is capable of doing housework.

With an average of 3.622 respondents say that AI can be a good commercial salesperson. People who have interacted with AI say that AI can be a good commercial salesperson with an average of 3.757, and people who have not interacted with AI also think that AI can be a good commercial salesperson with an average of 3.483. The t-test value of 0.119 shows that there is an acceptable difference between the two categories of people, which means that both categories are of the opinion that AI can be a good commercial seller.

With a general average of 3.558, the respondents have the opinion that AI can be a good teacher. Respondents who have interacted with AI say that it can be a good teacher, with an average of 3.741, and respondents who have not interacted with AI are less in agreement when it comes to AI being a good teacher, with an average of 3.372. The t-test is 0.033 shows that between the two categories of respondents there is a significant average difference, which means that respondents who have interacted with AI say that he can be a good teacher, and respondents who have not interacted with AI, I do not agree that he can be a good teacher.

To the question: Can AI make beneficial suggestions for health? respondents generally answered with an average of 3.538, which means that they believe that AI can make beneficial suggestions for health. With an average of 3.709, the respondents who interacted with AI say that it can make beneficial suggestions for health, which means that the interaction also plays an important role in choosing the answer. Respondents who have not interacted with AI with an average of 3.364, are less likely to agree that AI can make beneficial suggestions for health. With the help of the t-test (t-test=0.047) we notice that there is a significant average difference between the respondents who have interacted with AI and the respondents who have not interacted with AI, which means that interaction with AI plays an important role when it comes to we choose whether or not AI can do a certain thing.

With an average of 3.507, respondents are of the opinion that AI can take over the financial management of the household. Respondents who have interacted with AI (average=3.611) are of the opinion that AI can take over the financial management of the household, while respondents who have not interacted with AI (average=3.401) are less in agreement with this statement. The t-test is 0.234 and shows us that there are no significant average differences between the two categories of respondents, which means that the respondents who have interacted with AI know that it can take over the financial management of the household.

To the question: Can AI be a good bartender?, with a general average of 3.499 respondents have the opinion that AI can be a good bartender. Respondents who have interacted with AI have higher average values of 3.591, followed by respondents who have not interacted with AI with an average of 3.405. The t-test of 0.292 shows us that there is no significant difference between the two categories of respondents, which means that both the respondents who interacted with AI and those who did not interact with AI are of the opinion that AI can be a good bartender.

With an average of 3.364, respondents have the opinion that AI can give career advice. Respondents who have interacted with AI, with an average of 3.543, say that AI can give career advice, while respondents who have not interacted with AI, with an average of 3.182, are less in agreement with this statement. The t-test of 0.036 shows that there is a significant average difference between the two categories of respondents, both categories of respondents agreeing that AI can give career advice.

The general average of 3.029 shows us that the respondents are less in agreement with the question: Can AI be a good doctor? Both the respondents who interacted with AI (average=3.182) and the respondents who did not interact with AI (average=2.872) are of the opinion that AI cannot be a good doctor, which means that when it comes to health issues, people do not have much faith in artificial intelligence. Between the two categories of respondents there is an acceptable difference (t-test=0.066), resulting that both the respondents who interacted with AI and the respondents who did not interact with AI, do not think that AI can be a good doctor.

In general, the respondents do not think that AI can give personal advice (average=3.012). Respondents who have interacted with AI (average=3.158) as well as respondents who have not interacted with AI (average=2.864) are less likely to agree that AI can give personal advice. The t-test is 0.076 and shows us that between the two categories of respondents the difference is an acceptable one, which means that there is a difference of perception for the respondents who have interacted with AI and the respondents who have not interacted with AI, when it comes to receive personal advice.

The general average of 2.992 shows us that the respondents don't agree with the question: Can AI prescribe a treatment? Respondents who have interacted with AI with an average of 3.101, as well as respondents who have not interacted with AI with an average of 2.880, do not agree that AI can prescribe a treatment, which means that when it comes to health, people do not have as much trust in artificial intelligence as they would in specialized people. The t-test is 0.189 and shows us that there is no significant difference between the respondents who interacted with AI and those who did not interact with AI. Comparing the average of the two categories of respondents, it appears that both categories knowingly disagree that AI can prescribe a treatment.

The general answers (average=2.800) to the question: Can AI be a good psychotherapist?, show us that the majority of respondents tend to disagree with this question. The average of the respondents who have interacted with AI is 3.000, which means that these respondents to a small extent still believe that AI can be a good psychotherapist, while the respondents who have not interacted with AI with an average of 2.595, show us that they know not to believe that AI can be a good psychotherapist. The t-test is 0.014, showing a significant difference between the respondents who have interacted with AI and those who have not interacted with AI.

The general average of the answers to the question: Can AI occupy high positions in a company? is 2,603 and shows us that the respondents very little agree with this question. Both the respondents who have interacted with AI (average=2.725) and the respondents who have not interacted with AI (average=2.479) agree very little that artificial intelligence can occupy high positions in a company. The t-test (t-test=0.129) shows us that there is no significant difference between the two categories of respondents, which means that both respondents who have interacted with AI and respondents who have not interacted with AI know to disagree when it is about the ability of artificial intelligence to occupy high positions in a company.

Discussions and conclusions

The results show that people rather believe that AI can take roles in the household and less in giving personal advice in healthcare or career development. Experience in using AI changes the perception for more sophisticated task such as education, healthcare or personal advice. After analyzing the results and the respondents' answers, we can say that artificial intelligence can take over certain tasks that we humans do, but it cannot replace us, humans. We can say that artificial intelligence has come to the aid of people, making their lives easier by taking over certain tasks, but this does not mean that artificial intelligence can replace a person, but it only comes to the aid of people.

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