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Article

Artificial Intelligence Literacy and Public Acceptance of AI Technologies among Adults in Iraq

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Abstract: This study investigated the relationship between Artificial Intelligence (AI) literacy and public acceptance of AI technologies among adults in Iraq. The role of AI in public services, healthcare, education, banking, and digital communication is growing, making it a key sociological and policy issue to understand what factors affect citizens' acceptance of AI. A quantitative cross sectional survey design was used and data were gathered from 420 adults living in Iraq. Artificial Intelligence literacy and public acceptance of AI technologies were measured by a structured questionnaire with a five-point Likert scale. The data were analysed by descriptive statistics, Cronbach's alpha, exploratory factor analysis, Pearson correlation and regression analysis using IBM SPSS Statistics software. The results showed that the participants had a moderate to high level of AI literacy and moderate levels of public acceptance of AI technologies. The Pearson correlation analysis showed that there was a statistically significant positive correlation between the concepts of artificial intelligence literacy and public acceptance. The regression analysis also revealed that AI literacy was a significant predictor of public acceptance, accounting for 32.0% of the variance, and multiple regression analysis indicated that AI literacy is the most significant predictor, even after controlling for demographic and technology-related characteristics. The study is a significant contribution to the sociology of artificial intelligence, as it illustrates how AI literacy is a crucial social resource that influences citizens' receptivity to new technologies. The results highlight the need to encourage AI literacy initiatives to foster informed public acceptance and facilitate responsible digital transformation in Iraq.

Keywords: *Artificial intelligence literacy, public acceptance, Artificial intelligence technologies, adults, digital society, technology acceptance.*

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Introduction

Artificial intelligence (AI) has emerged as a specialised technological innovation into a social phenomenon that is present in our daily lives, in public services, in economic activities and in the decision-making of institutions. The use of AI-driven technologies has become more prevalent in various sectors such as healthcare, education, banking, transportation, e-government, security, and digital communication, fundamentally changing how people interact with technology and society (Floridi & Cowls, 2019; Dwivedi et al., 2023). With the growing presence of AI in everyday life, the attitudes and expectations of citizens towards these technologies have become a key research, policy and public institution issue.

As AI has become more widespread, there has been considerable public discussion of the opportunities and risks of AI to society. On the other hand, AI technologies have been acknowledged for their capacity to boost productivity, improve public services, assist economic growth, and enable evidence-based decision-making (Russell & Norvig, 2021; Dwivedi et al., 2023). However, public perceptions of AI remain influenced by issues of privacy, algorithmic bias, transparency, job displacement, surveillance, and ethical responsibility (Crawford, 2021; Jobin et al., 2019; Mittelstadt et al., 2016). This has made the acceptance of AI technologies by the public a key factor in the successful implementation of digital transformation, as without the acceptance and trust of the public, technological innovation can achieve its intended social benefits.

The AI literacy of the individuals has become an important factor in the understanding, assessment and interaction with the AI systems. AI literacy is not just about the technical aspects but also involves understanding the applications, limitations, evaluating outputs generated by AI, and understanding the ethical and social implications of intelligent technologies (Long & Magerko, 2020; Ng et al., 2021). People with greater AI literacy tend to be more able to make decisions about AI use and more able to identify realistic possibilities and opportunities as well as over-exaggerated expectations and misinformation. As a result, AI literacy has been increasingly identified as a key citizen competence for societies that are increasingly digitised (Kong et al., 2021).

AI literacy has been shown to positively impact the confidence and acceptance of emerging technologies by individuals in previous studies (Long & Magerko, 2020; Ng et al., 2021). Likewise, studies based on technology acceptance theory indicate that people who have a higher level of

understanding of technological innovations tend to view them as useful, trustworthy and beneficial (Davis, 1989; Venkatesh et al., 2003). However, empirical evidence also suggests that with increased knowledge, there is a potential for heightened awareness of ethical issues, privacy risks, and algorithmic biases, which can result in more cautious attitudes toward AI (O'Neil, 2016; Crawford, 2021). The results of these studies indicate that the correlation between AI literacy and public acceptance is still a theoretical and empirical question.

Empirical studies of public acceptance of AI are still relatively scarce in the Arab region, despite the high-level national digital transformation plans and the growing investment of governments in AI. Previous research has mainly investigated the use of AI in education, healthcare or organisational settings, with fewer studies dedicated to studying the general public's acceptance of AI. This restriction is especially noticeable in Iraq, where digital transformation efforts have been gaining momentum over the past few years, but where there is limited empirical evidence on citizens' awareness and adoption of AI technologies. The impact of digital literacy and access on people's involvement in the digital society and their interaction with emerging technologies has been shown in previous research in the region (Alhrahsheh & Ivanova, 2022; Alhrahsheh, 2023), which implies that AI literacy could also affect public acceptance of AI in wider social contexts.

In this context, the present study aims to explore the correlation between AI literacy and public acceptance of AI technologies among adults in Iraq. The study also explores the relationship between AI literacy and citizens' acceptance of AI applications in various aspects of daily life, advancing the sociology of AI and digital society. Moreover, the study contributes to the existing body of knowledge on the social factors that influence the acceptance of AI, as it draws from an under-researched context in the Arab world, and offers practical guidance to policymakers looking to foster responsible and inclusive digital transformation.

Literature Review

Artificial Intelligence Literacy in Contemporary Society

AI literacy is becoming a key citizen skill in digitally transformed societies. AI literacy is more than just knowing how to use an AI-powered application; it also involves understanding how AI systems work, critically assessing their outputs, acknowledging their limitations, and being aware of the ethical and societal implications of AI (Long & Magerko, 2020; Ng et al., 2021). AI literacy is essential for empowering people to make informed choices about the adoption and responsible use of intelligent

technologies, particularly as these technologies become more prevalent in daily life. With the growing integration of AI into everyday life, AI literacy is crucial for helping individuals make informed decisions about AI adoption and responsible use.

New studies indicate that AI literacy is not just about technical skills but a crucial part of digital citizenship. People with greater AI literacy tend to be better able to identify trustworthy and untrustworthy AI-generated content, to understand and identify algorithmic bias, to be aware of privacy and data protection concerns, and to be able to engage effectively in AI-mediated environments (Kong et al., 2021; UNESCO, 2023). As a result, AI literacy has emerged as a key educational and social goal, and governments and educational institutions have begun to see the need to educate citizens for the increasing impact of AI in various industries.

However, in Arab societies, empirical data on AI literacy is still relatively scarce. The current studies have been mainly conducted on university students and educational settings, with fewer studies addressing the general adult population's AI literacy. Digital literacy and access have been shown to have an impact on individuals' involvement in digital society and their relationship with new technologies in previous regional studies (Alhrahsheh & Ivanova, 2022; Alhrahsheh, 2023). The results indicate that AI literacy can also influence the perception, assessment, and action of citizens in their daily lives when it comes to AI technologies.

Public Acceptance of Artificial Intelligence Technologies

Public acceptance is a willingness of people to support, trust and use new technologies in various areas of society. From the perspective of artificial intelligence, public acceptance is defined as citizens' willingness to accept AI applications in sectors like healthcare, education, banking, transportation, public administration, commerce, and digital services (Dwivedi et al., 2023). The importance of public acceptance is gaining traction as a key enabler of successful digital transformation, as innovation and technology can only make an impact on society if there is public trust and social legitimacy.

Studies have found that the acceptance of AI is influenced by a variety of factors, such as usefulness, trust, transparency, ethical issues, privacy concerns, and perceived risks (Floridi & Cowls, 2019; Glikson & Woolley, 2020; Jobin et al., 2019). People who see AI as positive and reliable are more likely to encourage its use in various social areas. Those who believe that AI is positive and reliable are more likely to advocate its use in various social areas. On the other hand, the potential for algorithmic

discrimination, surveillance, accountability and job displacement could undermine public acceptance, even though the benefits of AI are acknowledged (Crawford, 2021; O'Neil, 2016).

Governments around the world are still encouraging the use of AI for innovation, but there are disparities in public acceptance of the technology across societies. Citizens' perceptions of AI technologies vary due to cultural values, digital experiences, institutional trust, and technological knowledge. This indicates that the acceptance of technology is not only based on technological attributes but also on social, cultural and institutional factors.

Artificial Intelligence Literacy and Public Acceptance of AI Technologies

AI literacy has emerged as a key factor in shaping public perceptions of AI technologies, as evidenced by the increasing body of research on the subject. People with more knowledge of AI are more likely to grasp its applications, assess its capabilities and differentiate between what it can and cannot do. Therefore, AI literacy can help to decrease uncertainty and boost confidence in AI technologies, which can lead to more widespread acceptance (Long & Magerko, 2020; Ng et al., 2021).

In the field of technology acceptance, it has been argued that knowledge affects how people perceive the technology as useful and easy to use, which in turn affects their willingness to use the technology (Davis, 1989; Venkatesh et al., 2003). In this light, AI literacy serves as the cognitive backbone for informed consent, not blind faith. People who have a grasp of the workings of AI systems are better equipped to assess the pros and cons of their implementation and make informed choices.

However, the connection between AI literacy and public acceptance is not as simple as it seems. But other academics suggest that greater understanding of the technology could raise ethical issues for people about algorithmic bias, privacy violations, surveillance, and social inequality, which may lead to more cautious attitudes toward AI (Crawford, 2021; Mittelstadt et al., 2016; O'Neil, 2016). AI literacy, on the other hand, may instead foster critical acceptance, in which citizens are aware of the advantages and possible risks associated with intelligent technologies.

While the field of AI research is growing rapidly, there is limited empirical research on the correlation between AI literacy and public acceptance of AI among adults, especially in Arab societies. The majority of past studies have focused on student, employee, or technology users' perceptions, with little attention paid to the general public. This study aims to fill this gap by investigating the relationship between artificial intelligence literacy and the acceptance of AI technologies among adults in the context of Iraq and providing new sociological evidence from an under-researched country.

Problem Statement

Artificial intelligence is becoming a part of daily life as it is used in the healthcare, banking, education, public administration, transportation, and commerce sectors, as well as in digital communication. Governments and organisations are still investing in AI-driven technologies, but it is not just about the technology; it is also about citizens' acceptance and utilization of the technology in their everyday lives. Public acceptance is therefore a key social determinant of the sustainability of digital transformation projects.

Previous studies indicate that AI literacy could be a key factor in influencing public perceptions of AI technologies. People with more knowledge about AI are more likely to understand what it does, its strengths and weaknesses, and to make decisions about how to use it (Long & Magerko, 2020; Ng et al., 2021). But previous empirical results are not consistent. While some research suggests that increased AI literacy leads to greater acceptance due to a reduction in uncertainty and improved confidence in AI technologies (Davis, 1989; Venkatesh et al., 2003), other studies have found that higher levels of knowledge can also raise awareness of ethical issues, algorithmic biases, privacy concerns, and social inequalities, potentially fostering more cautious or even sceptical attitudes towards AI (O'Neil, 2016; Crawford, 2021). The conflicting results suggest that the issue of public acceptance and AI literacy is not fully understood.

This is especially true of Arab societies, where there is a lack of research. While governments around the region have been speeding up their digital transformation plans and promoting the use of AI technologies, there is limited empirical research on citizens' acceptance of AI. Previous studies have focused on university students, organizational contexts, or the adoption of a particular technology in specific industries, and few studies have focused on the general adult population. This is particularly noticeable in Iraq, where AI technologies are slowly being introduced in both public and private sectors, but with little empirical evidence regarding the understanding and acceptance of AI technologies by adults.

Research Objectives

1. To assess the level of artificial intelligence literacy among adults in Iraq.
2. To examine the level of public acceptance of AI technologies among adults in Iraq.
3. To investigate the relationship between artificial intelligence literacy and public acceptance of AI technologies.

4. To determine whether artificial intelligence literacy significantly predicts public acceptance of AI technologies among adults in Iraq.

Research Questions

1. **RQ1.** What is the level of artificial intelligence literacy among adults in Iraq?
2. **RQ2.** How do adults in Iraq perceive and accept artificial intelligence technologies across different areas of everyday life?
3. **RQ3.** What is the relationship between artificial intelligence literacy and public acceptance of AI technologies?
4. **RQ4.** To what extent does artificial intelligence literacy predict public acceptance of AI technologies among adults in Iraq?

Research Hypotheses

H1. Artificial intelligence literacy is positively associated with public acceptance of AI technologies among adults in Iraq.

H2. Artificial intelligence literacy significantly predicts public acceptance of AI technologies among adults in Iraq.

Theoretical Framework

Theoretically, this study is based on the Technology Acceptance Model and Diffusion of Innovations Theory. The Technology Acceptance Model (Davis, 1989) describes the factors that influence an individual's acceptance and use of new technologies: perceived usefulness and perceived ease of use. For adults, the adoption of AI technologies is more likely to occur when they see the value, understand the technology, and can see how it can be used in everyday life. AI literacy can thus help to build trust among the public by enabling them to grasp the workings of AI, its advantages, and its responsible application. The Diffusion of Innovations Theory gives a more general sociological explanation of the diffusion of new technologies in a society (Rogers, 2003). This theory suggests that the following factors influence adoption: relative advantage, compatibility, complexity, trialability, and observability. When people see the benefits, understand how it fits into society, don't find it too complicated, and see it in their daily lives, including healthcare, banking, education, and government platforms, AI technologies are more likely to be accepted. Citizens' readiness to accept AI in social and institutional life might be influenced by AI literacy, which may decrease the perceived complexity.

The combination of these two theories enables the study to account for public acceptance from both the individual and social perspectives. The Diffusion of Innovations Theory and TAM are used to explain the process of AI acceptance and the perception of usefulness and ease of use, respectively, in broader social and institutional contexts. AI literacy can serve as a crucial enabler in Iraq to mitigate uncertainty and foster positive attitudes toward AI technologies, as digital transformation is still underway, and the public's understanding of AI is unevenly distributed among social groups.

While there is existing research on the adoption of AI in education and healthcare, there is little quantitative evidence on the correlation between AI literacy and public acceptance of AI among adults in Iraq. To address this, this study investigates if AI literacy has a significant impact on public acceptance of AI technologies in an under-researched Arab context.

Conceptual Framework

This study's conceptual framework is based on the relationship between artificial intelligence literacy and public acceptance of AI technologies. Artificial Intelligence Literacy is considered as the independent variable and Public Acceptance of AI Technologies is considered as the dependent variable. Some control variables are also included in the study, such as gender, age, educational level, employment status, income level, place of residence, frequency of technology use, and previous experience with AI technologies. The proposed model assumes that the more AI-literate adults are, the more they are inclined to embrace AI technologies in various aspects of daily life. AI literacy will decrease uncertainty, increase perceived usefulness, and increase citizens' willingness to support and use AI applications in the healthcare, education, banking, public services, transportation, and digital communication sectors.

Methodology

Research Design

This study used a quantitative cross-sectional survey design to explore the relationship between AI Literacy and the acceptance of AI technologies among adults in Iraq. A quantitative approach was suitable for the study because it allowed the study variables to be measured, the hypotheses to be tested, and the strength and direction of the relationship between AI literacy and public acceptance to be examined through statistical methods. The cross sectional design enabled data to be gathered from participants at one time.

Sample & Sampling

The population studied was adults aged 18 years or older in Iraq. The study sample included 420 adults with a variety of demographic, educational, occupational, and AI-experiences. The participants were selected using non-probability convenience sampling, and the online questionnaire was sent via social media groups, community networks, professional associations and public online groups. This sampling method did not provide generalisability, but was appropriate for large-scale quantitative survey research into public attitudes to emerging technologies.

Table 1

Demographic Characteristics of the Study Sample

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	214	51.0
	Female	206	49.0
Age	18–29 years	121	28.8
	30–39 years	142	33.8
	40–49 years	91	21.7
	50 years and above	66	15.7
Educational Level	Secondary or below	73	17.4
	Diploma	79	18.8
	Bachelor's degree	194	46.2
	Postgraduate	74	17.6
Employment Status	Government employee	145	34.5
	Private sector	92	21.9
	Self-employed	68	16.2
	Unemployed	61	14.5
	Retired	54	12.9
Place of Residence	Urban	298	71.0
	Rural	122	29.0
Frequency of AI Use	Daily	103	24.5
	Weekly	131	31.2
	Occasionally	118	28.1
	Rarely	68	16.2

Research Instrument

A structured questionnaire with four sections was used to collect data. The first section collected demographic data such as gender, age, level of education, employment status, place of residence, frequency of AI use and prior experience with AI technologies. The second section assessed Artificial

Intelligence Literacy by adapting items from validated AI literacy frameworks created by Long and Magerko (2020), Ng et al. (2021) and Kong et al. (2021). The questions covered participants' knowledge of AI concepts, awareness of AI applications, evaluation of AI-generated information, and ethical considerations related to AI.

The third section assessed Public Acceptance of AI Technologies, which was based on previous technology acceptance and AI adoption studies (Davis, 1989; Venkatesh et al., 2003; Dwivedi et al., 2023). The scale measured the participants' attitudes towards the adoption of AI applications in the healthcare, education, banking, public services, transportation, commerce and digital government services sectors.

The last part consisted of general questions about participants' views on the role of artificial intelligence in Iraqi society in the future.

Each of the study constructs was rated on a five-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). The higher the score, the more AI-literate and public acceptance of AI technologies were.

The questionnaire was face and content validated by experts in the fields of sociology, artificial intelligence, educational technology and quantitative research. The item clarity, item wording, and questionnaire completion time were evaluated in a pilot study with 30 Iraqi adults. Cronbach's alpha coefficient was used to assess the internal consistency.

Table 2
Reliability Coefficients of the Study Instrument

Scale	Number of Items	Cronbach's Alpha
Artificial Intelligence Literacy	10	.91
Public Acceptance of AI Technologies	12	.89
Overall Instrument	22	.93

The Cronbach's alpha coefficients were .89 to .91 and the overall instrument had a reliability coefficient of .93, which is excellent.

Exploratory Factor Analysis (EFA) was used to analyse the construct validity. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were conducted to determine whether the data was suitable for factor analysis.

Table 3

KMO and Bartlett's Test of Construct Validity

Test	Value
Kaiser–Meyer–Olkin (KMO) Measure	.901
Bartlett's Test of Sphericity (Approx. Chi-Square)	2986.44
df	231
Sig.	< .001

The KMO value exceeded the recommended threshold of .60, while Bartlett's Test of Sphericity was statistically significant ($p < .001$), confirming that the data were appropriate for exploratory factor analysis.

Table 4

Rotated Factor Loadings of the Measurement Items

Construct	Item	Factor Loading
Artificial Intelligence Literacy	AIL1	.813
	AIL2	.842
	AIL3	.801
	AIL4	.825
	AIL5	.846
	AIL6	.792
	AIL7	.831
	AIL8	.785
	AIL9	.817
	AIL10	.808
Public Acceptance of AI Technologies	PAT1	.822
	PAT2	.847
	PAT3	.815
	PAT4	.836
	PAT5	.802
	PAT6	.818
	PAT7	.811
	PAT8	.843
	PAT9	.826
	PAT10	.809
	PAT11	.793
	PAT12	.821

Note. The factor loadings of all the items in the measurement instrument were above .60, indicating good construct validity.

Data Collection Procedures

The data were gathered through an online questionnaire which was sent to adults in Iraq using digital communication platforms and community networks. Information was given to the participants regarding the purpose of the study, the voluntary nature of participation, confidentiality, anonymity, and the estimated time for completion. Completed questionnaires were only included in the statistical analysis. The data collection took about five weeks.

Ethical Considerations

The study adhered to the accepted ethical guidelines of social science research. The participation was voluntary and informed consent was obtained prior to filling out the questionnaires, and the participants were assured that their responses would be anonymous and confidential. No personal information was gathered and respondents had the option of not answering the questionnaire.

Statistical Analysis

IBM SPSS Statistics was used to analyse the data.

- Frequencies, percentages, mean and standard deviations were computed to describe the study sample and the main variables.
- The internal consistency of the instrument was tested using Cronbach's alpha and the construct validity was tested using exploratory factor analysis.
- The Pearson's correlation coefficient was used to analyse the correlation between AI literacy and public acceptance of AI technologies.
- Simple linear regression was carried out to see if there is a significant prediction of public acceptance by AI literacy.
- Multiple regression analysis was then performed to adjust for gender, age, educational level, employment status, place of residence, frequency of use of AI and previous experience with AI technologies.

Results

Descriptive Statistics

Descriptive statistics were used to find the level of AI literacy and public acceptance of AI technologies among adults in Iraq. The means and standard deviations were calculated for the study variables. Table 5 shows the results.

Table 5

Descriptive Statistics of the Main Study Variables

Variable	N	Mean	Standard Deviation	Level
Artificial Intelligence Literacy	420	3.62	0.74	Moderate to High
Public Acceptance of AI Technologies	420	3.55	0.77	Moderate

As shown in Table 5, the mean score of the adults in Iraq was 3.62 (SD = 0.74) which suggests that they had a moderate to high level of AI literacy. The results indicate a moderate level of public acceptance of AI technologies (M = 3.55, SD = 0.77) with positive but cautious attitudes towards the adoption of AI technologies in daily life.

Correlation An

A Pearson's correlation analysis was performed to explore the correlation between AI literacy and public acceptance of AI technologies. The results are shown in the table below (Table 6).

Table 6

Pearson Correlation Matrix

Variables	1	2
1. Artificial Intelligence Literacy	1	
2. Public Acceptance of AI Technologies	.566**	1

The results show that there is a statistically significant positive correlation between AI literacy and public acceptance of AI technologies ($r = .566$, $p < .001$). The findings indicate that there is a positive correlation between adults' AI literacy and their acceptance of AI technologies, with higher scores in AI literacy being associated with higher scores in acceptance. Thus, the hypothesis 1 was confirmed.

Regression Analysis

Simple linear regression was used to explore whether there was a significant relationship between the AI literacy of the participants and their acceptance of AI technologies.

Table 7

Simple Linear Regression Predicting Public Acceptance of AI Technologies

Predictor	B	SE	β	t	p
Constant	1.418	.178	—	7.97	< .001
Artificial Intelligence Literacy	.589	.047	.566	12.51	< .001

The regression analysis revealed that AI literacy was a significant predictor of public acceptance of AI technologies ($\beta = .566$, $t = 12.51$, $p < .001$). AI literacy accounted for 32.0% of the variance in public acceptance ($R^2 = .320$), suggesting that AI literacy was an important predictor of adults' acceptance of AI technologies. Thus, Hypothesis 2 was confirmed.

Multiple Regression Analysis

Multiple regression analysis was performed to assess the significance of the relationship between AI literacy and the other variables after controlling for demographic and technology-related variables, such as gender, age, education level, employment status, place of residence, frequency of using AI, and prior experience with AI.

Table 8

Multiple Regression Analysis Predicting Public Acceptance of AI Technologies

Predictor	β	t	p
Artificial Intelligence Literacy	.487	9.84	< .001
Gender	.038	0.82	.414
Age	-.061	-1.28	.201
Educational Level	.142	2.96	.003
Employment Status	.071	1.54	.124
Place of Residence	.096	2.07	.039
Frequency of AI Use	.184	3.88	< .001
Previous AI Experience	.129	2.71	.007

The multiple regression results showed that after controlling for demographic and technology-related variables, artificial intelligence literacy was the strongest predictor of public acceptance ($\beta = .487$, $p < .001$). Other factors that significantly predicted public acceptance were educational level, place of residence, frequency of use of AI and previous experience with AI. There were no statistically significant effects of gender, age or employment status. The final model accounted for 41.2% of the variance in public acceptance, which is considered good. The results indicate that AI literacy has a significant impact on the acceptance of AI technologies beyond demographic background and previous exposure to technologies.

Discussion

This study aimed to explore the correlation between the level of AI literacy and public acceptance of AI technologies among adults in Iraq. The results indicated that the participants' AI literacy was moderate, and their public acceptance of AI technologies was moderate. More significantly, the findings showed that the public's acceptance of AI was positively correlated with AI literacy, and that AI literacy was a significant predictor of citizens' willingness to accept AI technologies beyond any demographic and technology-related characteristics. The results suggest that AI literacy is a crucial component of public perceptions of AI and is part of the broader digital transformation of society.

The moderate to high level of AI literacy indicates that Iraqi adults have become more familiar with AI in their daily lives due to the increasing presence of AI in digital platforms, intelligent applications, online services, and media coverage. While AI education is not yet commonplace, many citizens have acquired some degree of practical expertise with AI technologies over time, as a result of their everyday use of AI-powered applications. This is in line with the views of Long and Magerko (2020), Ng et al. (2021), and Kong et al. (2021) who state that AI literacy is becoming more of a continuous process of interaction with digital technologies than a formal technical education. Likewise, earlier regional research has revealed that access to digital technologies and digitalisation has a positive impact on individuals' capacity to engage in technology-mediated societies (Alhrahsheh & Ivanova, 2022; Alhrahsheh, 2023). The moderate level of digitalisation seen in Iraq, however, could be due to variations in digital infrastructure, educational offerings, and public awareness campaigns when compared with other countries with higher levels of digitalisation where structured AI education is becoming more prevalent.

The results further showed that the acceptance of AI technologies was still moderate and not high. The findings indicate that Iraqi adults were largely aware of the potential benefits of AI, but at the same time showed some caution about the widespread use of AI. This result aligns with Floridi and Cowls (2019), Jobin et al. (2019), and Glikson and Woolley (2020), who state that the public's acceptance of AI technologies is not just a matter of perceived benefits, but also of citizens' belief that AI is transparent, ethical, and socially responsible. This moderate acceptance found in the current study could be a balance between the positive perceptions of innovation through AI and privacy, surveillance, algorithmic bias, job displacement, and accountability. This is also in line with Crawford (2021) and O'Neil (2016), who highlight that raising awareness of AI to the public is often accompanied by heightened awareness of social dangers.

The correlation analysis revealed that there was a positive correlation between AI literacy and public acceptance of AI technologies, with the relationship being statistically significant. This discovery suggests that those who had more knowledge of AI were more likely to be proponents of its use in various segments of society. This finding aligns with prior research indicating that technological knowledge decreases uncertainty, increases confidence, and fosters more positive attitudes towards new technologies (Davis, 1989; Venkatesh et al., 2003; Long & Magerko, 2020). People with knowledge of

the uses and limitations of AI seem to be better prepared to consider AI objectively and to differentiate between what is real and what is perceived as being true about intelligent technologies.

However, the findings of this study should not be taken as evidence that there is a direct causal link between higher levels of AI literacy and unconditional acceptance. Prior critical scholarship suggests that people who have more technological knowledge might be more aware of algorithmic discrimination, ethical issues, privacy concerns, and the centralization of technological power, which could lead to more conservative attitudes toward AI (Mittelstadt et al., 2016; Crawford, 2021; O'Neil, 2016). The results of the current study do not contradict these studies, but rather reinforce the notion that AI literacy promotes informed acceptance. Those who are more familiar with AI literacy might be more inclined to embrace AI technologies due to their understanding of the advantages and constraints of AI, resulting in a more balanced approach to its acceptance.

The regression analysis also revealed that public acceptance of AI technologies was significantly predicted by the artificial intelligence literacy, accounting for about 32% of the variance. Demographic factors were taken into account, and AI literacy was still the most significant factor in determining public acceptance. The discovery indicates that knowledge is one of the key social factors that shape citizens' attitudes towards AI technologies. The regression model also revealed that educational level, frequency of AI use, previous AI experience, and place of residence were also significant factors in the public acceptance of AI. The results underscore the role of not just knowledge but also social and contextual factors that impact on people's access to digital technologies and their experiences of using them.

The results of this study support the Technology Acceptance Model (TAM) (Davis, 1989). Adults with greater AI literacy felt more positive about the usefulness and comprehension of AI technologies, which boosted their openness to AI use in various aspects of daily life. The results also validate Diffusion of Innovations Theory (Rogers, 2003). Rogers states that the understanding of new technologies and the perceived relative advantages of the innovation are important factors in the adoption of innovations. The results of the current study indicate that AI literacy contributes to the social acceptability of AI technologies, as the complexity of these technologies is perceived to be lower. In this context, AI literacy helps to spread AI by empowering citizens to interact with new technologies in a more confident and responsible manner.

The results show from a sociological point of view that AI literacy can be considered as a type of digital social capital that influences the involvement of citizens in increasingly AI-mediated societies. People with greater AI literacy have the potential to assess AI-generated information, engage in digitally transformed public services, and make decisions about the use of AI. As such, AI literacy plays a role in the larger picture of digital inclusion and social participation. The results indicate that public investments in AI education and digital literacy programs could contribute to the responsible use and adoption of AI and improve public trust in national AI transformation plans in Iraq.

Limitations

There are a number of caveats that need to be noted. Firstly, the cross-sectional design did not allow for causal inferences about the relationship between AI literacy and public acceptance of AI technologies. Second, the study was based on self-reported responses that could have been subject to response bias and/or social desirability. Thirdly, participants were from various demographic groups but the use of convenience sampling restricted the generalisability of the findings to the broader Iraqi population. Lastly, the study analysed AI literacy as the key determinant of public acceptance, while other factors like institutional trust, perceived risk, cultural values, media exposure, and government policy could also affect citizens' acceptance of AI technologies.

Future Research Directions

Longitudinal research designs would be beneficial for future studies to explore the development of AI literacy and public acceptance over time as AI becomes more prevalent. Comparative studies between Arab countries would be helpful in understanding cultural and institutional variations in public acceptance of AI. In addition, future studies could explore the influence of mediators and moderators like institutional trust, perceived risk, AI self-efficacy, digital literacy, and ethical awareness on the development of more comprehensive explanatory models. Lastly, the combination of quantitative surveys and qualitative interviews (mixed methods research) may offer a more nuanced understanding of citizens' perceptions of the opportunities and challenges of AI technologies in their daily lives.

Conclusion

The current study aimed to explore the correlation between AI literacy and public acceptance of AI technologies among adults in Iraq. The results showed that participants had a moderate to high level of AI literacy and moderate level of public acceptance. The findings also confirmed that the artificial

intelligence literacy had a positive relationship with public acceptance, and significantly explained the citizens' willingness to accept AI technologies.

The study adds to the sociology of AI by showing that AI literacy is not just a technical skill, but a crucial social resource that influences citizens' perceptions, attitudes, and acceptance of new technologies. The results indicate that enhancing AI literacy can foster public awareness and understanding of AI, thereby supporting the effective adoption of national digital transformation efforts in the context of Iraq.

In conclusion, the study emphasises the need for the creation of public AI literacy programs that will improve citizens' awareness and understanding of AI technologies, while fostering ethical considerations, critical analysis, and responsible use. These efforts can help foster an informed society that is able to accept AI innovation and understand its social, ethical, and institutional impacts.

Declarations

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This study involved the use of artificial intelligence tools to assist with generating instructional ideas, improving language clarity, and enhancing the organisation of the manuscript, consistent with COPE guidance. All AI-assisted outputs were carefully reviewed, edited, and validated by the author to ensure academic integrity, originality, and accuracy. The author takes full responsibility for the content of the manuscript.

Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

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