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Role of Artificial Intelligence in the Spread and Detection of Misinformation: Impacts on Youth in the Digital Age

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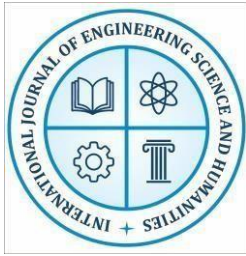
Abstract

This paper explores the two-sided nature of Artificial Intelligence (AI) in the spread and identification of misinformation, with a closer examination of how technology affects young people in the digital era. The fast development of false information in social media sources can be a great danger to the level of knowledge and trust in society, particularly in young digital citizens that use the online sources regularly. Based on a quantitative research design data were collected using a survey conducted online on 173 youth participants between the age of 16- 30 years in Hisar, Haryana, India. The paper examined exposure of the participants to AI generated misinformation, knowledge of AI detecting tools and the digital literacy behaviors such as verifying information prior to sharing. The inferential analysis and descriptive statistics demonstrated that more active social media users are highly exposed to misinformation. The results also show that the awareness of AI among young people is moderate as less than half of them know about the application of AI and they are aware of little about the presence of tools to fight fake news. Nonetheless, learning digital literacy skills is high demand. There was no significant effect of gender verification behavior and AI awareness was equal between the age groups represented in the sample. This study highlights the need to produce integrated educational curriculums that improve critical thinking, as well as digital literacy, in young people alongside the creation of sophisticated AI-driven detection systems. The research is added to the knowledge of the multifaceted impact of AI on dynamic misinformation and provides policy and educational suggestions that would protect the youth in the changing digital information space.

Keywords: Artificial Intelligence, Misinformation, Youth, Digital Literacy, Social Media, Fake News Detection.

Introduction

The role of artificial intelligence (AI) in the evolving digital world is important and multifaceted in the modern world. The fast development of social media has ensured the instant popularity of information exchange. But this has come with the issue of misinformation false or misleading information that is being used as fact (Adams, 2023). Distrust in misinformation can destroy trust, affect society negatively and cause confusion in social and political environments (Shao et al., 2018). AI influences this issue in two aspects. On the one hand, AI



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helps in classifiers that identify falsified news through the analysis of textual rules and online actions. These technologies filter out misleading material and identify it to keep users out of deception traps (Gondwe, 2025; Stewart et al., 2023). Conversely, AI can also be used to create realistic fake content, including text, images and videos making it even harder to detect and control (Grub Friedrich et al., 2025; Germani, 2024).

Misinformation created by AI is particularly dangerous to young people, who are among the primary users of digital media. Most young people swallow information rapidly and, in the majority of instances, without questioning its authenticity (Kops, 2025; Jones-Jang et al., 2023). This can affect their thinking, belief systems and judgment. The rise in the strength of AI-generated fake news among youth should be investigated in detail to study and develop solutions to overcome it (European Democracy Action Plan, 2020; Selnes, 2024). This paper discusses how AI contributes to the viral dissemination of misinformation and its detection, focusing on the impact on youth. The study aims to promote better education, policies and technologies to keep youth safe in the digital age and enable critical thinking skills.

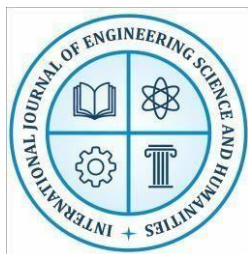
Review of Literature

The study on the topic of fake news and misinformation has revealed that the exposure is associated with adverse consequences on knowledge, attitudes and behavior of young people. The simplicity of the dissemination of the content on social networks has increased the speed of the spread of misinformation, so young people are extremely exposed and even vulnerable (Dhiman, 2023). The use of AI in the detection of fake content is promising because machine learning tools, including neural networks, deep learning and support vector machines, will become increasingly more accurate. Nevertheless, there are still problems because of emerging fake technologies such as deep-fakes and AI bias (Hakim and Easwaramoorthy, 2024). Social network analysis-based models of the propagation have provided strength to the fake news detection systems (Monti et al., 2019). Research highlights that there is a need to enhance digital literacy and critical thinking among the young population. Although a large portion of the youth actively use digital platforms, their ability to critically assess information on the internet is usually at its lowest level (Washington, 2023). By combining learning initiatives and AI detection systems, it is possible to increase the ability to resist misinformation. Moreover, artificial intelligence developed misinformation spreads not only fake news but also endangers nation security and citizen trust (Elhoussainy, 2024). Digital misinformation is so complicated that interdisciplinary studies that involve AI, psychology and sociology should be conducted to develop more effective detection and prevention measures (Harris et al., 2024). To conclude, existing studies highlight the opportunities of AI in combating misinformation. Nevertheless, it also shows the necessity to use integrated technical, teaching and ethical solutions to defend young people in the digital information age.

Research Objectives

The study aims to:

1. Examine the role of AI in promoting and identifying fake news on online sources.



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2. Evaluate the impact of the AI tools in countering misinformation and supporting the critical thinking of the youth.
3. Investigate how AI-related misinformation affects the beliefs, attitudes of the youth and decision-making.

Research Methodology

This research design is a quantitative research design involving descriptive research. An online survey was conducted with Google Forms to collect data using it due to the active use of social media by the target audience (15-30 years old).

Sample Size

The sample size was 173 individuals, who were sampled purposely in the state of Hisar, Haryana, India, targeting individuals who were exposed to misinformation digitally.

Data Collection

Data were gathered in a structured questionnaire that was mainly closed-ended (multiple choice, Likert scales, yes/no) in five parts, including Introduction and Consent, Demographics, Awareness of AI and Misinformation, Impact of AI-generated Misinformation and Digital Literacy and Critical Thinking.

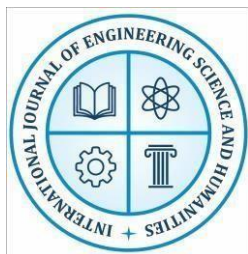
Data Analysis

Responses were exported and analyzed using SPSS software. Descriptive statistics provided frequency distributions and central tendency measures. Inferential statistics assessed relationships between variables related to AI's role in misinformation spread and detection and youth's critical thinking abilities.

Data Interpretation

Table 1: Distribution of Demographic and Key Variables (N=173)

Section	Variable	Frequency (n)	Percentage (%)
Demographics	Age 16-18	40	23.1
	Age 19-22	66	38.2
	Age 23-26	24	13.9
	Age 27-30	43	24.8
	Male	83	48.0
	Female	90	52.0

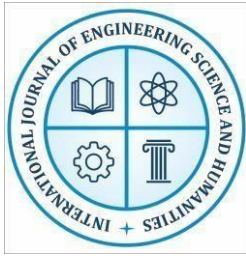


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Section	Variable	Frequency (n)	Percentage (%)
	Primary Education	48	27.7
	Graduate	83	48.0
	Post-Graduate	35	20.2
	Other	7	4.1
	Use Social Media Regularly	135	78.0
	Do Not Use Social Media	38	22.0
AI Awareness and Misinformation	Heard About AI	73	42.2
	Not Heard About AI	100	57.8
	Frequently Experienced Fake News	69	39.9
	Sometimes/Rarely/Never Experienced Fake News	104	60.1
Impact and Digital Literacy	Shared Information Turned Fake	83	48.0
	Aware of Fake News Tools	35	20.2
	Interested to Learn Tools	128	74.0
	Always Verify Before Sharing	85	49.1



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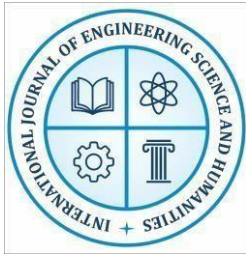
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Table 1 presents the summary of the demographic features and important indicators of AI awareness, exposure to misinformation and digital literacy of the surveyed youth. The sample size is almost equal with males (48) and females (52) participating in the study, which makes the sample balanced in terms of gender. The age distribution indicates the highest percentage of 19-22 years (38.2) of age bracket that is generally considered to be in late adolescence or early adulthood and then comes the 27-30 years bracket at 24.8%. The smaller ones include 16-18 years (23.1%), 23-26 years (13.9%), so a wide age range of youths is represented. As far as education is concerned, almost a half of the respondents are in the process of acquiring or have acquired at least graduate level education (48%), 27.7% is at the primary level education, 20.2% at the post-graduate level and a few (4.1) at the other levels. This diversity describes a diversified education history of the sampled generations of youths. About the degree of technological engagement, a majority percentage (78) takes social media with activity, thereby highlighting their proactiveness in the online world. Regarding awareness of Artificial Intelligence, the sample is less familiar with AI, as only less than half (42.2) indicate that they have heard about AI, which means moderate awareness of this technology that gains more and more significance. The exposure to misinformation is high with almost 40 percent indicating that they frequently encounter fake news in the Internet and the rest 60 percent encounter it occasionally, infrequently and never. In terms of digital literacy practices, almost half of the participants (48 percent) have had experiences when the information they have shared has proven to be inaccurate, which indicates that the misinformation process directly affects the participants in their digital interactions. The knowledge of the tools to identify fake news is very low, 20.2%, but the desire to use them is high (74) among the youths. Lastly, a relatively low percentage (49.1) always checks information before sharing, which can be considered a sector of digital literacy that can be enhanced.

Table 2: Cross-Tabulation – Social Media Use vs. Experience of Fake News

Social Media Use	Frequently Experienced Fake News	Sometimes/Rarely/Never Experienced Fake News	Total
Yes (135)	88 (65%)	47 (35%)	135
No (38)	9 (24%)	29 (76%)	38



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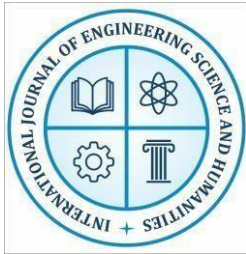
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Table 3: Chi-Square Test – Social Media Use and Experience of Fake News

Test	Value	df	Significance (2-sided)
Pearson Chi-Square	20.146	1	0.000*
Likelihood Ratio	20.046	1	0.000*
Linear-by-Linear Assoc.	20.026	1	0.000*
N of Valid Cases	173		

*Significant at $p < 0.05$

Table 2 shows the correlation between the use of social media and the incidence of fake news among the respondents. The statistics show that there is a severe disparity between exposure with regard to social media use. A large percentage of social media users (N=135) who regularly use the platform report seeing fake news quite frequently, with 65% (88 respondents) noting that they frequently encounter it. Conversely, a small fraction (24) of the non-regular users of social media indicates that they are exposed to misinformation frequently (9 respondents). The remaining social media users and non-users say that they experience fake news sometimes, rarely, or never, 35% of those who use the social media and 76% of those who do not are in these categories respectively. This apparent distinction implies that the active use of social media sites has a higher probability of exposing people more frequently to misinformation. The issue of false or misleading information spreading fast is served by social media because of its massive reach and the fact that the site is user-generated. Such increased exposure to high users is a highlight of the susceptibility of active digital consumers to misinformation. This trend is statistically proven by the values of the chi-square test in Table 3. The Pearson chi-square test of 20.146 with one-degree of freedom is related to a p-value of less than 0.001, which is very strong and statistically significant reliance between the use of social media and the probability of interacting with fake news. This implies that the connection observed could not have been as a result of randomness and this is a sound evidence that social media use is associated with increased exposure to misinformation.



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Table 4: Cross-Tabulation – Education Level vs. Awareness of Fake News Detection Tools

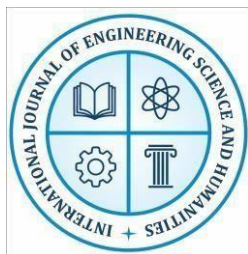
Education Level	Aware of Tools (Yes)	Not Aware (No)	Total
Primary (48)	7 (15%)	41 (85%)	48
Graduate (83)	29 (35%)	54 (65%)	83
Post-Graduate (35)	18 (51%)	17 (49%)	35
Others (7)	3 (43%)	4 (57%)	7

Table 5: Chi-Square Test – Education Level and Awareness of Detection Tools

Test	Value	df	Significance (2-sided)
Pearson Chi-Square	18.700	3	0.000*
Likelihood Ratio	19.320	3	0.000*
Linear-by-Linear Assoc.	14.215	1	0.000*
N of Valid Cases	173		

*Significant at $p < 0.05$

Table 4 shows the correlation between the level of education of the respondents and the level of awareness concerning tools that can be used to identify fake news. There is a definite trend in which there is awareness with rise in the education level. The percentage of those having the basic educational level that have heard about fake news detection tools is very small (15%) and it may indicate a lack of exposure to the notion of digital literacy or to applicable technological tools at the level of primary education. As one ascends the educational ladder, the awareness level is 35 percent of the graduates and it goes up to 51 percent amongst post-graduates. The small sample size of the “Others” category has a relatively high level of awareness of 43 percent. This trend shows that the level of education correlates with a higher level of familiarity with the digital tools indicating the influence of the advanced education on the development of



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the critical digital skills. The increased education levels would tend to expose the youths to the elements of the curriculum that would focus on media literacy, information critical analysis and the use of technology in order to determine the authenticity of content.

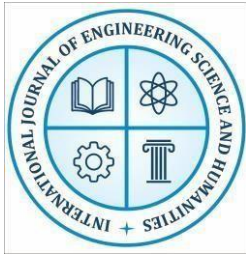
Table 5 demonstrates the dependence between the education level of the respondents and the level of awareness regarding the tools that could be employed to determine fake news. The trend is clear whereby the awareness increases with increase in the level of education. The proportion of individuals with the basic education level who have learned of fake news detection devices is highly negligible (15%) and it may reflect the fact that they have not received the concept of digital literacy or relevant technological devices at the primary education level. With the increase in the educational level, the level of awareness is 35 percent of the graduates and it increases to 51 percent among the post-graduates. The level of awareness of the small sample of the category of Others is a fairly high 43 percent. Such a tendency demonstrates that the degree of education is associated with a greater degree of acquaintance with the digital tools pointing to the contribution of the advanced education to the formation of the critical digital skills. The elevated educational attainment would be inclined to expose the young people to the aspects of the curriculum that would focus on media literacy, information critical thinking and application of technology in the process of identifying whether content is authentic.

Table 6: Cross-Tabulation – Gender vs. Verification of Information Before Sharing

Gender	Always Verify	Sometimes Verify	Rarely/Never Verify	Total
Male (83)	42 (50.6%)	23 (27.7%)	18 (21.7%)	83
Female (90)	43 (47.8%)	25 (27.8%)	22 (24.4%)	90

Table 7: Chi-Square Test – Gender and Verification Behavior

Test	Value	df	Significance (2-sided)
Pearson Chi-Square	0.258	2	0.878
Likelihood Ratio	0.261	2	0.878
Linear-by-Linear Assoc.	0.064	1	0.801



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Test	Value	df	Significance (2-sided)
N of Valid Cases	173		

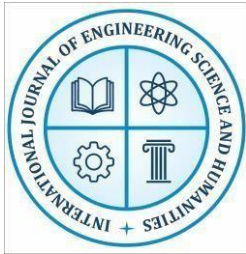
*Not significant ($p > 0.05$)

Table 6 offers the specifics of male and female respondents in terms of their checking of information prior to going online. The statistics indicate that approximately 50.6% and 47.8% of the males and females always confirm the information before sharing it, which proves that a substantial part of both sexes is rather cautious. Some 28 percent of men and 28 percent of women occasionally check the content they post demonstrating moderate care. Only a minor yet significant proportion, about 22-percent of the male and 24-percent of the female population, sometimes or never checks the information before passing on. The results of these figures imply that both genders have a significant number of people who are sometimes disclosing unconfirmed information. The fact that the proportion of males and females in all verification categories is similar suggests that the gender does not seem to produce specific behaviors in this matter. Pre-sharing verification habits are balanced between genders, with the levels of responsibility and risk awareness being similar to each other.

The findings of the chi-square test in Table 7 statistically confirm this conclusion. The chi-square Pearson value is 0.258 and the degrees of freedom is 2 and the level of significance is very high 0.878 compared to the normal alpha level 0.05. It means that the sample does not have a statistically significant difference in verification behaviors between males and females. Therefore, the aspect of gender does not play a role in determining the frequency with which the youth checks information prior to posting it online in the group. The verification patterns are similar between male respondents and female respondents, which suggests that the activities aimed at promoting attentive sharing of information should be directed towards both genders.

Table 8: Cross-Tabulation – Age Group vs. Awareness of Artificial Intelligence

Age Group	Heard About AI (Yes)	Not Heard About AI (No)	Total
16-18 (40)	16 (40%)	24 (60%)	40
19-22 (66)	29 (44%)	37 (56%)	66
23-26 (24)	10 (42%)	14 (58%)	24



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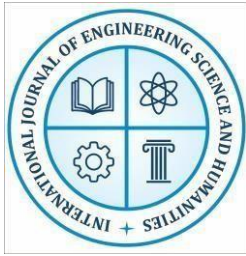
Age Group	Heard About AI (Yes)	Not Heard About AI (No)	Total
27-30 (43)	18 (42%)	25 (58%)	43

Table 9: Chi-Square Test – Age Group and AI Awareness

Test	Value	df	Significance (2-sided)
Pearson Chi-Square	0.261	3	0.968
Likelihood Ratio	0.268	3	0.966
Linear-by-Linear Assoc.	0.043	1	0.836
N of Valid Cases	173		

*Not significant ($p > 0.05$)

Table 8 shows the awareness of Artificial Intelligence (AI) among four age groups of youth between 16 and 30 years. The statistics indicate that the level of AI awareness is rather stable across the population. To be precise, 40% of respondents in the 16-18 years old category have heard about AI and 44% of the 19–22 year old category, 42% of the 23–26 year old and 42% of the 27-30 year old category have also said that they are familiar with AI. This shows little change in the AI awareness among these age groups. This observation is substantiated by the chi-square statistical test results presented in Table 9 that the Pearson chi-square value is 0.261 with 3 degrees of freedom and the significance value is 0.968. The p-value is this large because there is no significant difference in the AI awareness of the various age groups in this sample. The fact that the level of AI awareness is fairly even among the age groups of youths indicates that the amount of information about AI technologies is evenly distributed among the young individuals aged 16 to 30 years. Thus, the programs to increase awareness and interest in AI among this group are able to be formulated and executed at a large scale across age groups without the need to design age-specific interventions. Furthermore, the level of awareness regarding AI is still very low, with a little more than 40 percent of the participants having heard about AI, which suggests that there is still a scope of raising awareness and educating more people about the role and implications of AI in the society. This also indicates the need to keep on formulating methods that enhance the knowledge of the youth to enable them to be safe and responsible in their interactions with AI involved technologies.



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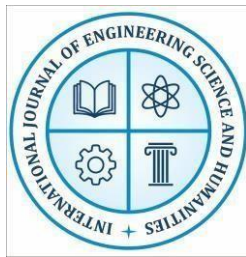
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Research Findings

- The target population is comprised of 173 young people aged between 16 and 30 years with almost equal genders.
- Most (78) of them are frequent users of social media and this affects their accessibility to content on the internet.
- Only 42% of young people heard about Artificial Intelligence (AI), which implies that this group of people is moderately informed.
- Almost 40 percent encounter fake news on a regular basis, which indicates that misinformation is a regular aspect of their online life.
- Nearly half (48) of them have posted information that was later proven to be false illustrating how difficult misinformation can be.
- Only 20% of respondents are aware of tools that help to detect fake news, yet a very high majority (74% of respondents) want to learn about how to use them, which is a sign of overall readiness to receive digital literacy training.
- About half (49 percent) never share information without verifying the information, so many of them nevertheless share unverified information occasionally.
- In this way, social media users are far more prone to frequent exposure to fake news (65%) than non-users (24%) and social media has turned out to be a significant source of misinformation.
- Education awareness of detection tools is significant with increase in awareness with primary education to 15 to 51% with the advancement in post-graduate education.
- There is no significant difference in verification habits between males and females; males and females are similar in verification behavior.
- AI awareness does not differ significantly between ages 16 to 30 years.
- The general situation is that the youth are highly attached to digital media, often vulnerable to misinformation and that there is a definite desire to enhance the digital literacy of young people.
- There is a high desire of the young generation to understand how to spot fake news, so the prospects to enhance digital literacy are present.
- As a means to tackle misinformation, digital literacy initiatives must be offered to the entire youth without any particular focus, being based on awareness, practices of verification and knowledge of AI.

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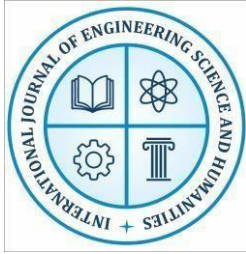


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